



REGIONE AUTONOMA DELLA SARDEGNA
CITTA' METROPOLITANA DI CAGLIARI E PROVINCIA DEL MEDIO CAMPIDANO



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**PROGETTO PER LA REALIZZAZIONE
DEL PARCO EOLICO
"TREXENTA"**

Potenza complessiva 43.4 MW

PROGETTO DEFINITIVO
DELL'IMPIANTO, DELLE OPERE CONNESSE E DELLE
INFRASTRUTTURE INDISPENSABILI

RS-7

STUDIO DEGLI EFFETTI DI SHADOW FLICKERING

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1 CRITERI GENERALI DI ANALISI E VALUTAZIONE

Il presente elaborato, facente parte integrante dello Studio di impatto ambientale allegato al progetto del parco eolico denominato "Trexenta", proposto dalla Green Energy Sardegna 2 S.r.l. – Gruppo Fri-El Green Power, in territorio di Selegas (CA), esamina compiutamente il potenziale disturbo da ombreggiamento intermittente (*shadow flickering*) sui potenziali ricettori individuati nell'area interessata dal proposto impianto, entro una distanza indicativa di 1000 metri dagli aerogeneratori.

A tal fine, nel seguito, si farà riferimento alla ricognizione sugli edifici esistenti eseguita nell'ambito della definizione del layout di impianto e dell'analisi ambientale, i cui risultati sono riepilogati in opportune "schede fabbricati" all'interno di apposito report allegato al progetto del parco eolico (Elaborato PA-R.6 - Report dei fabbricati censiti e degli edifici sensibili).

Sotto il profilo metodologico, il documento è strutturato in una sezione introduttiva atta a descrivere la natura del fenomeno dell'ombreggiamento intermittente e le ipotesi alla base dei calcoli previsionali, eseguiti a mezzo di specifico software specialistico. Poiché il modello di calcolo si basa sull'assunzione di ipotesi estremamente conservative, come più sotto esplicitato, si è proceduto successivamente ad affinare la stima introducendo ulteriori elementi di analisi e valutazione (quali le condizioni di funzionamento dell'impianto in rapporto al regime anemologico del sito ed alle situazioni meteorologiche attese nell'area di intervento), condizionanti sensibilmente l'entità del fenomeno.

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2 DESCRIZIONE DEL FENOMENO

Un ostacolo solido opaco posto tra il sole e il terreno genera un'ombra. Generalmente se l'ostacolo è fermo, l'ombra si proietta al suolo seguendo le regole del movimento relativo del sole sull'orizzonte. Le dimensioni dell'ombra proiettata sono funzione inversa dell'angolo che i raggi del sole formano sull'orizzonte per cui si ha la massima dimensione (elongazione sul terreno) dell'ombra all'alba ed al tramonto con il minimo quando il sole raggiunge la massima altezza (mezzogiorno).

Anche gli aerogeneratori durante il giorno proiettano un'ombra che in parte è fissa (torre e navicella) e in parte è mobile (pale del rotore).

Se l'ombra del rotore invece che sul terreno si proietta sulle aperture di un fabbricato può venirsi a creare l'effetto di ombra intermittente o *shadow flickering* (sfarfallio dell'ombra); in talune circostanze, tale fenomeno di pulsazioni "luce – ombra" può potenzialmente essere all'origine di un disturbo alle normali attività che possono svolgersi all'interno dell'ambiente abitativo.



Il fenomeno si verifica durante il giorno in presenza di cielo sereno ed in assenza di ostacoli naturali, quali vegetazione, alberi, muri ecc., e con le turbine in movimento.

Per le ragioni anzidette, a distanze turbine-ricettore superiori a circa 300 metri solitamente il fenomeno di *shadow flickering* si manifesta all'alba o al tramonto, allorquando le ombre proiettate sono sufficientemente lunghe. Per le stesse ragioni il tremolio dell'ombra è un fenomeno particolarmente avvertito nelle regioni del nord Europa (Germania, Danimarca, ecc.) piuttosto che alle latitudini del Mediterraneo.

L'intensità del *shadow flickering* è definita come la differenza in luminosità, in un determinato sito, in presenza ed assenza di un'ombra.

Di seguito si riassumono alcuni aspetti caratteristici del fenomeno:

- la pala delle turbine eoliche è stretta in corrispondenza dell'estremità più esterna ed assume progressivamente maggiore larghezza verso la giunzione con il mozzo. Quando una turbina è posizionata sufficientemente vicino ad un ricettore, cosicché la porzione più larga della pala oscura una porzione maggiore del campo visivo (o meglio del disco solare), l'intensità di *shadow flickering* aumenterà. A distanze maggiori l'intensità del fenomeno sarà minore in quanto le pale copriranno una porzione inferiore del disco solare;
- l'intensità del *shadow flickering* è più bassa quando l'ombra che intercetta un ricettore si origina dall'estremità esterna del rotore (minore spessore della pala). L'intensità aumenterà allorché l'ombra si muove lungo lo sviluppo della pala fino ad arrivare ad un massimo in corrispondenza del mozzo; a tal punto l'intensità diminuisce quando l'ombra si sposta verso l'estremità della pala opposta;
- bassi impatti da *shadow flickering* sono generalmente indicativi di grandi distanze tra

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turbine e ricettore e ombre incidenti originate dalle estremità del rotore;



- situazioni di precaria visibilità determineranno modeste intensità di *S. flickering*;
- a distanze ancora maggiori le ombre proiettate risulteranno "fuori-fuoco". Ciò non è causa di un'intensità inferiore del *shadow flickering* ma contribuisce a rendere meno distinto il fenomeno;
- all'interno di un ambiente ben illuminato le ombre svaniscono. Conseguentemente l'accensione di luci in un ambiente riduce l'incidenza del *shadow flickering*;
- schermare una finestra (con tende o quant'altro) previene il fenomeno;
- schermare un edificio (ad esempio con alberature) può rappresentare una misura di mitigazione per prevenire il fenomeno.

La frequenza di pulsazione del tremolio dell'ombra è proporzionale alla velocità di rotazione del rotore. La tipica frequenza di passo fra le pale del rotore (tripala) è compresa tra 0.6 ed 1 Hz (velocità con cui le pale passano attraverso una posizione specifica).

Nel caso specifico, considerando un rotore del diametro indicativo di 170 metri con una velocità massima nominale di rotazione di circa 11 RPM si avrà una frequenza di passo pari a circa 0,5 Hz. Tali frequenze di oscillazione luminosa sono prive di rischi significativi per la salute.

Ricerche finalizzate alla definizione di relazioni cause-effetto tra fenomeni stroboscopici ed attacchi epilettici (Graham e Pamela Harding della *Aston University* e Arnold Wilkins della *University of Essex*) attestano che, al fine di escludere rischi sulla salute, le turbine eoliche dovrebbero ruotare a velocità superiori a 60 RPM (velocità di passo superiori a 3 Hz). Peraltro, non può disconoscersi come il fenomeno del *shadow flickering* possa talvolta costituire, in particolari situazioni, un disturbo per i ricettori più esposti.

Per analizzare i risultati e quindi definire l'effettiva portata del disturbo, è dunque fondamentale conoscere l'esatta destinazione del fabbricato ricettore. Nel seguito saranno considerati potenziali ricettori i soli edifici che, sulla base delle informazioni disponibili e delle verifiche condotte in sito, potrebbero prudenzialmente ricondursi alla fattispecie di "ambienti abitativi".

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3 INDIVIDUAZIONE DEI RICETTORI

Per le finalità del presente studio, con l'intento di meglio inquadrare i criteri di individuazione dei potenziali edifici sensibili (o ricettori) del proposto impianto eolico, si ritiene opportuno richiamare i contenuti della D.G.R. RAS n. 59/90 del 27/11/2020 (*Studio per l'individuazione delle aree in cui ubicare gli impianti eolici*) e segnatamente il punto 4.3.3 dell'Allegato e) "*Distanze di rispetto dagli insediamenti rurali*".

"Al fine di limitare gli impatti visivi, acustici e di ombreggiamento, ogni singolo aerogeneratore dovrà rispettare una distanza pari a:

- *300 metri da corpi aziendali ad utilizzazione agro-pastorale in cui sia accertata la presenza continuativa di personale in orario diurno (h. 6.00 – h. 22.00);*
- *500 metri da corpi aziendali ad utilizzazione agro-pastorale in cui sia accertata la presenza continuativa di personale in orario notturno (h. 22.00 – 6.00), o case rurali ad utilizzazione residenziale di carattere stagionale;*
- *700 metri da nuclei e case sparse nell'agro, destinati ad uso residenziale, così come definiti all'art. 82 delle NTA del PPR."*

Secondo tale impostazione, pertanto, possono individuarsi le seguenti categorie di edifici:

Cat. 1 - nuclei e case sparse nell'agro, destinati ad uso residenziale, così come definiti all'art. 82 delle NTA del PPR;

Cat. 2a - corpi aziendali ad utilizzazione agro-pastorale in cui sia accertata la presenza continuativa di personale in orario notturno;

Cat. 2b - corpi aziendali ad utilizzazione agro-pastorale in cui sia accertata la presenza continuativa di personale in orario diurno;



Cat. 3 - fabbricati ad utilizzazione agro-pastorale con presenza discontinua di personale;

Cat. 4 - fabbricati di supporto alle attività agricole (ricoveri, depositi, stalle);

Cat. 5 - ruderi/fabbricati in abbandono

Cat. 6 – impianti minieolici esistenti.

Muovendo da tale classificazione, al fine di procedere all'individuazione di potenziali ricettori nelle aree più direttamente interessate dalle installazioni eoliche, ricomprese entro una distanza massima di 1000 m dalle postazioni di macchina, si è proceduto ad una individuazione complessiva dei fabbricati con l'ausilio della cartografia ufficiale di riferimento (Carta Tecnica Regionale in scala 1:10.000). Successivamente si è proceduto a verificarne l'effettiva esistenza e consistenza dall'esame di foto aeree e satellitari nonché attraverso specifici sopralluoghi sul

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campo e interviste ai fruitori dell'area. In tal modo sono state acquisite le necessarie informazioni preliminari sulle caratteristiche tipologico-costruttive e le condizioni di utilizzo degli edifici. Per completezza di analisi sono stati inclusi nel censimento anche quei fabbricati che, in modo manifesto, non presentavano caratteristiche di potenziali ambienti abitativi (p.e. ruderi o depositi). A valle di tali riscontri, è stata inoltre accertata la categoria catastale di appartenenza degli edifici, laddove disponibile.

L'Elaborato PA-R.6 (*Report dei fabbricati censiti e degli edifici sensibili*) riporta l'individuazione dei fabbricati censiti in accordo con la metodologia precedentemente indicata. Nel Report è contenuto inoltre lo stralcio della ripresa aerea zenitale, la categoria catastale di appartenenza ed una fotografia dei fabbricati censiti.

Il censimento ha condotto ad individuare n. 29 edifici, o complessi di fabbricati agricoli. Tra questi, 3 sono stati riconosciuti avere condizioni di utilizzo congruenti con la categoria 1 precedentemente individuata (i.e. nuclei e case sparse nell'agro, destinati ad uso residenziale, così come definiti all'art. 82 delle NTA del PPR). Per tali fabbricati - identificati con le sigle F09, F16 e F18 - in accordo con le indicazioni della D.G.R. RAS 59/90 del 2020, è stata osservata una distanza di 700 m dagli aerogeneratori in progetto.

Tra i predetti fabbricati è stata riscontrata la prevalente presenza di corpi ad uso terziario e commerciale (categoria catastale C) tra cui negozi e botteghe, magazzini e locali di deposito, stalle, scuderie, rimesse e autorimesse. Ai fini della sola verifica dei limiti acustici applicabili nel periodo diurno, tra gli edifici censiti sono stati selezionati prudenzialmente due fabbricati (F09 e F13) che, per loro caratteristiche tipologiche e costruttive, possono assimilarsi a fabbricati ad utilizzazione agro-pastorale con presenza discontinua di personale e, dunque, ricondursi alla Categoria 3.

Si contano inoltre 5 unità con categoria catastale D10 (Fabbricati per funzioni produttive connesse alle attività agricole), alcuni ruderi e altri fabbricati non presenti nel catasto fabbricati (apparentemente magazzini di deposito).

In questo quadro, avuto riguardo della circostanza che n. 3 edifici, contrassegnati con gli identificativi F09, F16 e F18 nel predetto Report sono catastalmente classificati in Categoria A3 (abitazioni di tipo economico) o A4 (abitazioni di tipo popolare), gli stessi sono stati assunti come riferimento per le verifiche circa l'esposizione ai fattori di impatto rappresentati dall'ombra intermittente (*shadow flickering*) e dal rumore.

La Tabella 3.1 riporta per ciascun ricettore individuato le relative coordinate, secondo il sistema Gauss Boaga e la categoria Catastale.





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Tabella 3.1: Fabbricati con destinazione catastale abitativa esposti al potenziale disturbo da shadow flickering

Fabbricato	Comune	GB Est	GB Nord	Distanza dal più prossimo WTG [m]	Categoria Catasto Fabbricati
F09	Selegas	1510320	4382211	846 (SE07)	A3 – Abitazioni di tipo economico
F16	Gesico	1510734	4383670	888 (SE07)	A4 – Abitazioni di tipo popolare
F18	Gesico	1510140	4383926	894 (SE07)	A4 – Abitazioni di tipo popolare

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4 IPOTESI ALLA BASE DEL CALCOLO E SOGLIE DI RIFERIMENTO

Il software specialistico utilizzato per la stima dell'entità del fenomeno impiega un modello estremamente conservativo per il calcolo del *shadow flickering*. Nessuno, tra i fattori di influenza indicati al capitolo 2 è contemplato nei calcoli del modello di simulazione. In situazioni di cielo coperto o calma di vento, o in caso di direzione del vento tale da porre il piano del rotore in posizione parallela rispetto alla linea sole-ricettore, la WTG non produrrà ombra intermittente, ma il suo contributo teorico è comunque computato dal *software*. Inoltre, per ovvie ragioni, la simulazione contempla il solo effetto dell'orografia sulla propagazione dell'ombra, ignorando l'azione schermante "sito-specifica" esercitata dai manufatti e dalle alberature. In altre parole, il calcolo descrive lo scenario peggiore possibile, e rappresenta quindi il massimo rischio potenziale di disturbo.

Conseguentemente è altamente verosimile che i ricettori considerati nelle simulazioni saranno soggetti ad un impatto da *shadow flickering* significativamente inferiore a quello ipotizzato dal modello.


In definitiva, affinché il fenomeno dell'ombra intermittente possa costituire un disturbo per i soggetti più sensibili dovrebbero verificarsi simultaneamente le seguenti circostanze:

- il vento deve soffiare ad una velocità superiore a 3 m/s (velocità di *cut-in* del rotore);
- presenza di luminosità solare diretta;
- l'osservatore deve risultare sufficientemente vicino alla sorgente di *shadow flickering*;
- il ricettore deve essere effettivamente esposto al campo di luce tremolante;
- l'illuminazione dell'ambiente residenziale deve essere bassa;
- il contrasto tra luci ed ombre deve essere alto;
- non devono essere presenti schermature che ostacolano la propagazione dell'ombra (come tendaggi o alberature);
- gli individui potenzialmente soggetti ad un impatto da *shadow flickering* dovrebbero permanere esposti alla luce tremolante per un tempo sufficiente ad avvertire fastidio.

Per le finalità del presente studio, in assenza di una specifica disciplina normativa nazionale o regionale sull'argomento, si è fatto riferimento alle linee guida elaborate dal Gruppo Federale tedesco di Controllo delle Emissioni (*Bund-/Länder-Arbeitsgemeinschaft für Immissionsschutz - LAI*) – aggiornamento 2020.

Per la valutazione degli effetti del tremolio dell'ombra, peraltro, lo stesso legislatore tedesco non ha finora emanato, né risulta che sia in procinto di emanare, norme giuridicamente vincolanti.

Secondo le richiamate linee guida, affinché il fenomeno di ombreggiamento sia significativo dovrebbero essere simultaneamente verificate le seguenti circostanze

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- L'angolo del sole sopra l'orizzonte deve essere almeno 3°;
- l'ingombro della pala della turbina eolica deve coprire almeno il 20% del disco solare.

Il massimo ombreggiamento su un edificio secondo tali linee-guida è stabilito in:

- 30 ore di ombreggiamento annuale;
- 30 minuti di ombreggiamento giornaliero.

In tali archi temporali (30 ore/anno e 30 minuti/giorno), trattandosi di un disturbo effettivamente avvertito dagli occupanti l'edificio, dovrebbero risultare simultaneamente verificate le seguenti condizioni:

- gli ambienti esposti all'ombreggiamento sono occupati;
- gli occupanti sono svegli.

Considerata l'esigua probabilità che si verifichino contemporaneamente tutte le condizioni precedentemente illustrate per l'intera durata del fenomeno, ne deriva che il risultato del calcolo rappresenta comunque una stima oltremodo prudentiale dell'impatto.

La Figura 4.1 e la Figura 4.2 mostrano i parametri necessari al modello utilizzato dal modulo SHADOW per valutare l'effetto del tremolio dell'ombra.

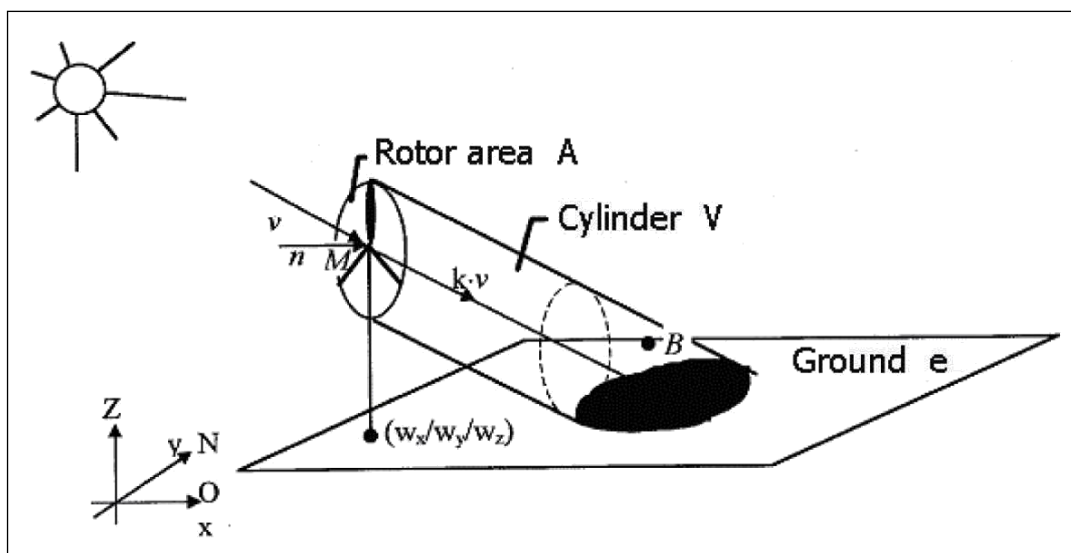



Figura 4.1: Rappresentazione schematica della proiezione dell'ombra del rotore.

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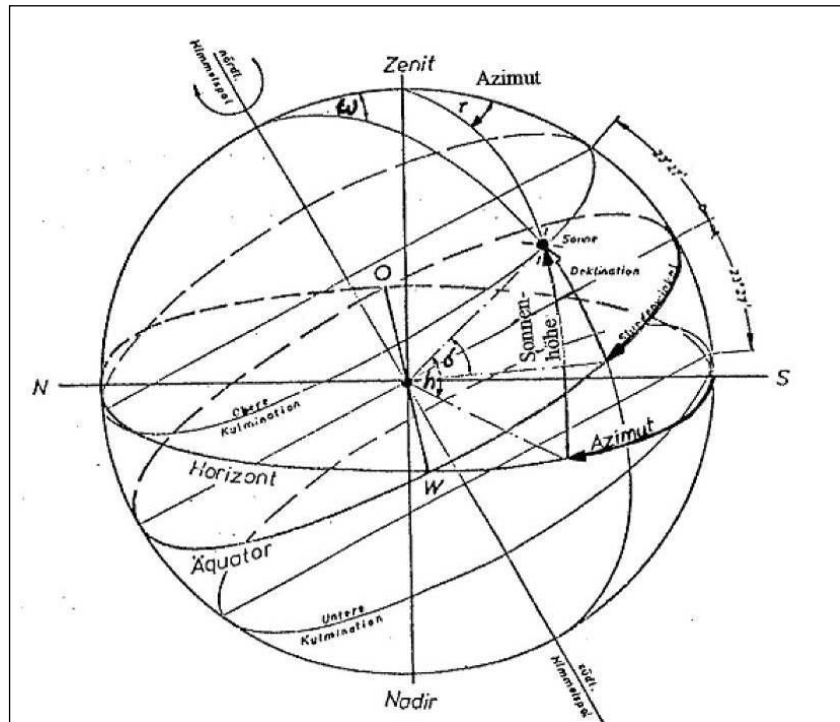




Figura 4.2: Schema dei moti terrestri e parametri di calcolo.

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5 RISULTATI

Il risultato dei calcoli è reso disponibile dal programma di simulazione (*Windpro*) sotto diversi formati:

- Tabellare, (calendario per ciascun ricettore) nel quale per ogni giorno dell'anno sono indicate le ore di luce e l'intervallo di tempo di esposizione all'ombra con l'orario in cui si verifica il fenomeno;
- Grafico, (per ciascun ricettore) nel quale vengono rappresentati i periodi dell'anno in cui si verifica il fenomeno, l'orario e le turbine responsabili dell'ombra;
- grafico globale, con la rappresentazione di isolinee rappresentanti l'incidenza dell'ombra espressa in ore/anno.

Con riferimento allo Scenario di progetto, le isolinee d'ombra sono state rappresentate su specifica tavola grafica, in scala adeguata alla dimensione territoriale da rappresentare, per facilitarne la lettura. La tavola è stata realizzata, pertanto, su base cartografica in scala 1:10.000 (Elaborato RS-7 – All. 1).



I risultati forniti dal modello di calcolo consentono di valutare approssimativamente sia l'impatto puntuale sul singolo ricettore, sia l'impatto distribuito sul territorio (movimento e persistenza dell'ombra).

Nello specifico, all'interno degli allegati report di calcolo sono indicati, per il singolo ricettore, i valori totali di interferenza da *shadow flickering* (espressi in h/anno), il numero di giorni in cui si verifica l'interferenza ed infine la durata massima per singolo giorno.

Come evidenziato sopra, peraltro, l'output fornito dal modello è alquanto conservativo e non realistico, giacché la simulazione non tiene in considerazione i numerosi fattori sfavorevoli al verificarsi del disturbo.

Per quanto precede, nel seguito si procederà ad esaminare le risultanze dei calcoli modellistici, introducendo nella valutazione di impatto ulteriori elementi che tengano conto delle effettive condizioni di funzionamento degli impianti, in rapporto al quadro anemologico atteso, nonché delle condizioni meteorologiche caratteristiche del sito di Selegas, con particolare riferimento alle condizioni medie di copertura del cielo.

I risultati numerici delle simulazioni modellistiche, condotti con riferimento a ciascuno scenario di calcolo, sono riportati in Appendice.

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6 ANALISI E POST-ELABORAZIONE DEI RISULTATI

Le risultanze del calcolo modellistico atto a stimare i valori totali di potenziale interferenza da *shadow flickering* in corrispondenza dei ricettori nello scenario di progetto sono riportate in Tabella 6.1.

Tabella 6.1: Scenario 1 - Durata massima del fenomeno di shadow flickering potenziale (SF_P) in corrispondenza dei fabbricati potenzialmente adibiti ad uso abitativo all'interno dell'areale di interesse

ID	Ricettore	SF_P [h/anno]	SF_P [gg/anno]	SF_P [max h/giorno]	WTG interessati
1	F09	29:49:00	89	00:28	SE05
2	F16	40:45:00	89	00:40	SE06, SE07
3	F18	57:01:00	90	00:51	SE04, SE06



Dall'esame della Tabella 6.1 si evince quanto segue:

- stanti le ipotesi estremamente cautelative alla base della simulazione modellistica, l'incidenza del *shadow flickering* indotto dal progetto, assunta la soglia di $SF_P=30$ h/anno come valore di riferimento per una valutazione di significatività, si manifesterà in modo più avvertibile su n. 2 edifici abitativi (F16 e F18);
- relativamente all'edificio F09 le ore di ombreggiamento stimate sono inferiori alla soglia di significatività anche nello scenario più cautelativo.

Relativamente ai ricettori potenzialmente più esposti di cui alla Tabella 6.1 - individuati in base al criterio di una incidenza del $SF_P \geq 30$ h/anno - tenuto conto della rilevanza e consistenza numerica delle ipotesi conservative alla base del calcolo modellistico, muovendo dai risultati della simulazione, si è proceduto ad affinare la stima dei valori di effettiva esposizione all'ombra intermittente introducendo opportuni coefficienti di riduzione.

Il principale coefficiente di riduzione, indicato come R_N , tiene conto dell'incidenza media delle condizioni meteo di "cielo coperto" che caratterizzano il territorio di interesse, in concomitanza con le quali il fenomeno del *shadow flickering* non sarebbe avvertibile. Per la determinazione di R_N si è fatto riferimento ai dati di copertura nuvolosa pubblicati nell'Atlante Climatologico elaborato dai dati delle Stazioni della Rete Operativa del Servizio Meteorologico dell'Aeronautica Militare Italiana nel periodo 1971-2000.

La nuvolosità, o copertura del cielo, rappresenta la frazione della volta celeste coperta da nubi,

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esprimendo il rapporto tra la parte di cielo coperta e la superficie totale del cielo.

La copertura del cielo viene valutata a vista durante le osservazioni da terra effettuate dalle stazioni meteorologiche e la frazione che la rappresenta viene espressa in ottavi, da 0 a 8.

Quando il cielo è coperto per più della metà da nubi con la base sotto i 20.000 piedi si dice che le nubi formano un soffitto (*ceiling*). Quando non esistono nubi si dice che il cielo è sereno (*clear sky*). Di seguito si riporta la scala convenzionale di nuvolosità in ottavi:

Copertura tra 1 e 2 ottavi – poche nubi (*few*);

Copertura tra 3 e 4 ottavi – nubi sparse (*scattered*);

Copertura tra 5 e 7 ottavi – copertura con squarci (*broken*);

Copertura totale >7 ottavi (*overcast*).

La Tabella 6.2 riporta, per la stazione A.M. più prossima al sito in esame (Capo Frasca - OR), il numero medio di giorni al mese con copertura nuvolosa > 4/8 alle ore 06:00 ed alle ore 18:00, ossia con presenza di cielo "coperto" (Ng h6 Nuv>4 e Ngh18 Nuv>4 rispettivamente).

Sulla base dei mensili di SF_P calcolati per ciascun ricettore nello Scenario 1 è stato possibile pervenire alla stima dei valori di SF al netto delle giornate con presenza di cielo coperto (SF_{NC}) attraverso la seguente espressione:

$$SF_{NC}[h/anno] = \sum_{i=1}^{12} SF_{Pi} \cdot (1 - R_{Ni})$$

Dove:

SF_{NC} = h/anno di *shadow flickering* potenziale al netto delle giornate con presenza di cielo coperto;

SF_{Pi} = ore di *shadow flickering* teorico da modello di calcolo per il mese i-esimo;

R_{Ni} = frequenza dei giorni con copertura del cielo >4/8 per il mese i-esimo.

Con riferimento ai ricettori di interesse, i dati di SF_{NC} sono riportati in Tabella 6.3.



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Tabella 6.2: Aeronautica Militare – Stazione di Capo Frasca (OR). Dati medi di copertura nuvolosa >4/8 registrati nel periodo 1971-2000 (Fonte, Aeronautica Militare Italiana)

	Ng h6 Nuv>4	Ngh18 Nuv>4	Media Nuv>4	Media Nuv>4 (%)
gen	14,5	16,5	15,5	50%
feb	14,5	16,6	15,6	56%
mar	16,5	17,6	17,1	55%
apr	19,4	18,4	18,9	63%
mag	15,2	14,8	15,0	48%
giu	11,4	10	10,7	36%
lug	7,9	6,1	7,0	23%
ago	7,8	6,9	7,4	24%
set	10,2	10,6	10,4	35%
ott	15,2	14,7	15,0	48%
nov	15,3	15,5	15,4	51%
dic	14,6	16,3	15,5	50%

Ng h6Nuv>4: Numero medio di giorni al mese con copertura nuvolosa > 4/8 alle ore 6

Ngh18Nuv>4: Numero medio di giorni al mese con copertura nuvolosa > 4/8 alle ore 18

MediaNuv>4: Media del numero medio di giorni al mese con copertura nuvolosa > 4/8 registrata alle ore 6 ed alle 18

L'esame della Tabella 6.3 mostra come l'incidenza del fenomeno del *shadow flickering*, al netto delle giornate con cielo coperto (SF_{NC}), risulterà inferiore alla soglia di riferimento in corrispondenza di entrambi gli edifici in esame, presentando un'incidenza massima al netto delle giornate di cielo coperto (SF_{NC}) di circa 29 h/anno (fabbricato F37).



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Tabella 6.3: Incidenza del fenomeno del shadow flickering, al netto delle giornate con cielo coperto, in corrispondenza in corrispondenza dei fabbricati potenzialmente adibiti ad uso abitativo all'interno dell'areale di interesse

Ricettore	SF _P [h/anno]	SF _{NC} [h/anno]	WTG Interessate
F09	29:49:00	19:41:07	SE05
F16	40:45:00	20:08:25	SE06, SE07
F18	57:01:00	28:18:23	SE04, SE06

Per quanto riguarda il caso peggiore tra i ricettori considerati, rappresentato dal fabbricato F18 (entità del fenomeno di ombreggiamento stimata in 28 h/anno al netto delle giornate con cielo coperto), si ritiene opportuno formulare, inoltre, le seguenti considerazioni:

- il report del programma di simulazione mostra come il potenziale impatto da SF per il ricettore F18 sia attribuibile agli aerogeneratori SE04 e SE06, posti a sudovest del fabbricato a distanze di 1526 m e 985 m rispettivamente;
- il fenomeno di ombreggiamento sarà limitato al solo periodo da novembre a gennaio ed interesserà le ore pomeridiane (indicativamente dalle 15:30 alle 17:30) con una persistenza massima giornaliera di circa due ore;
- i dati di frequenza della direzione di provenienza del vento massimo pubblicati dall'ARPAS (Tabella 6.4) indicano per la stazione di Capo Frasca (la più rappresentativa per il sito in esame), una frequenza dei venti provenienti da NW e SE per circa il 44% delle occorrenze. In tali circostanze è stimabile un impatto da SF del tutto trascurabile, avendosi il piano del rotore pressoché allineato con la congiungente sole-ricettore. Nel 56% delle possibili situazioni di provenienza del vento, viceversa, il fenomeno potrà presentarsi in modo potenzialmente avvertibile ma comunque scarsamente significativo per le ragioni anzidette.

In definitiva, considerate le ipotesi oltremodo conservative alla base del modello di calcolo (cielo sereno, rotore ortogonale alla congiungente sole-ricettore, rotor in movimento e dunque velocità del vento superiore a 3m/s, effettiva presenza degli occupanti l'edificio, sufficiente contrasto luci-ombre, assenza di elementi schermanti) è ragionevole affermare che gli effettivi impatti da *shadow flickering* risulteranno estremamente più contenuti di quelli prospettati dal software di simulazione nello scenario *worst case*, tali da potersi ricondurre ai predetti "valori guida" e da non arrecare apprezzabili disturbi agli occupanti gli edifici.




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Figura 6.1 – Edificio F18 (vista da sudest)

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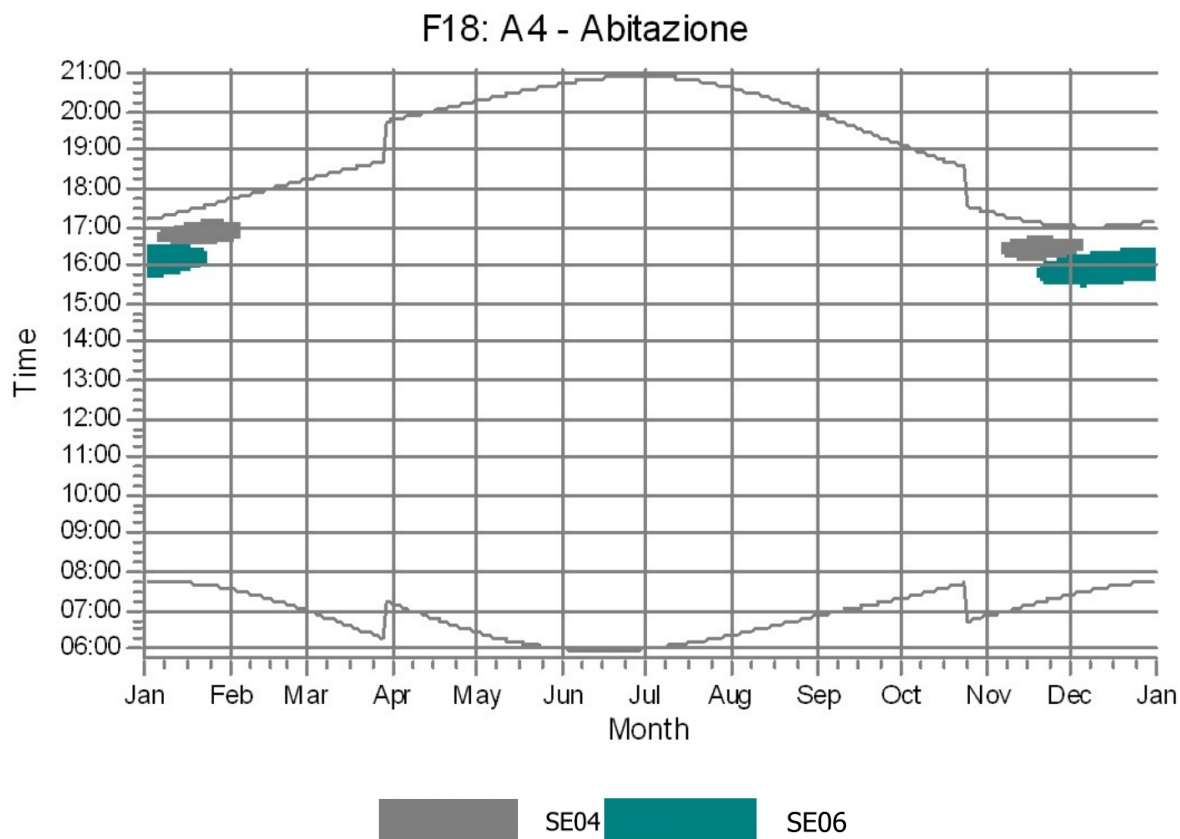




Figura 2 – Calendario dell'ombra per il ricettore F18

Tabella 6.4 - Direzione di provenienza del vento massimo¹ - percentuali sul totale dei dati disponibili (Anni 1951÷1993 - Fonte ARPAS)

Stazione	N	NE	E	SE	S	SW	W	NW	direzione variabile
									o calma di vento
Capo Frasca (Arbus)	10,41	3,97	9,62	15,94	2	9,72	19,83	28,26	0,26
Decimomannu	10,94	2,1	2,78	23,17	14,71	3,62	9,1	32,97	0,62
Elmas	14,68	0,84	4,35	17,68	20,85	2,36	11,98	27,11	0,15
Spalmatoreddu (Carloforte)	15,02	3,83	6,42	10,62	8,98	6,68	10,31	38,14	0
Fonni	6,79	6,6	7,94	6,58	5,4	16	33,6	16,41	0,67
Capo Bellavista (Arbatax)	8,34	15,07	10,94	7,98	15,45	5,23	15,7	21,19	0,1
Perdasdefogu	2,05	6,28	22,53	11,63	1,2	10,13	39,1	6,44	0,63
Guardiavecchia (La Maddalena)	4,41	10,53	15,95	5,51	0,72	6,64	51,07	4,99	0,19
Asinara	3,07	3,02	22,68	4,29	3,77	9,16	40,84	13,03	0,13
Alghero	6,85	11,57	4,24	0,73	16,65	12,05	27,76	19,97	0,19

¹ I dati utilizzati sono relativi al vento di massima intensità misurato nell'arco delle 24 ore e rappresentano l'istante della giornata in cui tale fenomeno ha raggiunto il suo massimo. Ne discende che la statistica ottenuta si riferisce al comportamento del vento dominante in una giornata, ma non a quello misurato istante per istante.

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7 CONCLUSIONI



Il documento ha esaminato compiutamente il potenziale disturbo da ombreggiamento intermittente (*shadow flickering*) sulle abitazioni sparse presenti nell'area interessata dal proposto parco eolico, entro una distanza indicativa di 1000 metri dagli aerogeneratori in progetto. L'individuazione dei ricettori ha fatto riferimento alla ricognizione sugli edifici esistenti eseguita nell'ambito della definizione del layout di impianto e dell'analisi ambientale, i cui risultati sono riepilogati in opportune "schede fabbricati" all'interno di apposito report allegato alla documentazione progettuale.

Avuto riguardo della circostanza che n. 3 edifici, tra quelli censiti, sono catastalmente classificati in Categoria A (abitazioni), gli stessi sono stati oggetto di verifica circa l'esposizione all'ombra intermittente (*shadow flickering*).

Per le finalità del presente studio, in assenza di una specifica disciplina normativa nazionale o regionale, si è fatto riferimento alle linee guida elaborate dal Gruppo Federale tedesco di Controllo delle Emissioni (*Bund-/Länder-Arbeitsgemeinschaft für Immissionsschutz - LAI*) – aggiornamento 2020.

Relativamente allo Scenario di progetto si è evidenziato come l'incidenza del fenomeno del *shadow flickering*, al netto delle giornate con cielo coperto, si presenterà ragionevolmente inferiore alla soglia di riferimento di 30 h/anno presso tutti gli edifici.

In definitiva, considerate le ipotesi oltremodo conservative alla base del modello di calcolo (cielo sereno, rotore ortogonale alla congiungente sole-ricettore, rotori in movimento e dunque velocità del vento superiore a 3m/s, effettiva presenza degli occupanti l'edificio, sufficiente contrasto luci-ombre, assenza di elementi schermanti) è altamente verosimile che gli effettivi impatti da *shadow flickering* risulteranno estremamente più contenuti di quelli prospettati dal software di simulazione, riferibili allo scenario *worst case*, tali da potersi ricondurre ai predetti "valori guida" e da non arrecare apprezzabili disturbi agli occupanti gli edifici.

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APPENDICE - REPORT DEI RISULTATI DEL CALCOLO MODELLISTICO

SHADOW - Main Result

Calculation: Shadow_progetto_2021_12_23

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

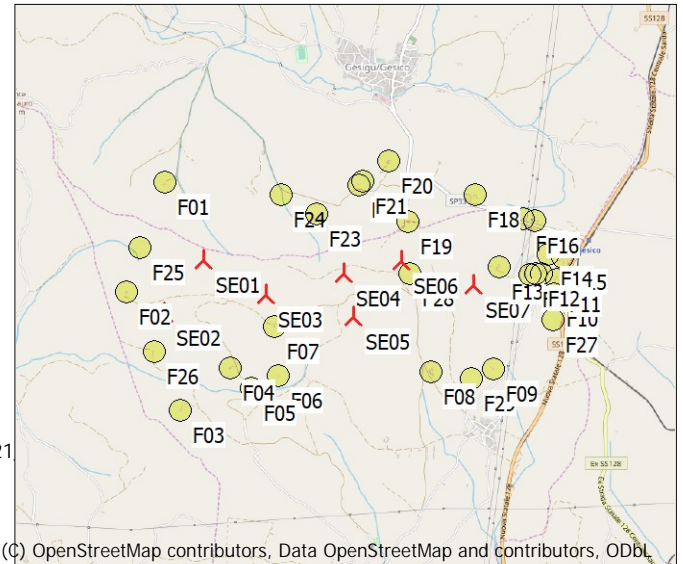
Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes
The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: CONTOURLINE_Eolico_Selegas_2021
Obstacles used in calculation
Eye height for map: 1,5 m
Grid resolution: 1,0 m

All coordinates are in
Italian Gauss-Boaga west-ROMA40 (IT-peninsular <±4m)

WTGs

	WTG type				Shadow data							
	Easting	Northing	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM
SE01	1.507.438	4.383.279	416,6	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	115,0	2.041	8,8
SE02	1.507.051	4.382.748	450,0	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	115,0	2.041	8,8
SE03	1.508.062	4.382.933	452,8	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	115,0	2.041	8,8
SE04	1.508.834	4.383.137	417,3	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	115,0	2.041	8,8
SE05	1.508.931	4.382.716	430,0	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	115,0	2.041	8,8
SE06	1.509.404	4.383.272	399,8	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	115,0	2.041	8,8
SE07	1.510.116	4.383.032	390,0	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	115,0	2.041	8,8



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL
Scale 1:75.000
New WTG
Shadow receptor

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	a.g.l. [m]	[°]		[m]
F01	D10	1.507.057	4.384.047	330,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F02	SEMINATIVO - PASCOLO ARB	1.506.677	4.382.959	420,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F03	C2	1.507.209	4.381.791	347,5	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F04	SEMINATIVO - PASCOLO	1.507.707	4.382.212	354,1	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F05	SEMINATIVO	1.507.924	4.382.016	347,3	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F06	C2	1.508.187	4.382.137	362,6	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F07	C1	1.508.146	4.382.624	450,7	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F08	C2	1.509.695	4.382.177	335,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F09	A3 - Abitazione	1.510.320	4.382.211	343,7	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F10	ENTE URBANO	1.510.928	4.382.949	370,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F11	C2	1.510.946	4.383.093	372,4	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F12	C2	1.510.685	4.383.137	378,4	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F12	FABB RURALE	1.510.741	4.383.146	376,8	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F12	C2	1.510.801	4.383.151	375,1	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F13	C6	1.510.374	4.383.212	385,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F14	ENTE URBANO	1.510.858	4.383.342	370,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F15	ENTE URBANO	1.511.006	4.383.309	370,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F16	A4 - Abitazione	1.510.734	4.383.670	361,4	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F17	F3-C1	1.510.617	4.383.694	363,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F18	A4 - Abitazione	1.510.140	4.383.926	370,9	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F19	D10	1.509.474	4.383.651	386,4	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F20	D10	1.509.278	4.384.253	360,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F21	C2	1.509.024	4.384.061	380,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F22	C2	1.508.981	4.384.023	382,9	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F23	D10	1.508.562	4.383.735	378,4	1,2	1,4	1,2	90,0	"Green house mode"	2,6

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow_progetto_2021_12_23

...continued from previous page

No.	Name	Eastings	Northing	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
				[m]	[m]	[m]	a.g.l.	[°]		(ZVI) a.g.l.
							[m]			[m]
F24	C2	1.508.214	4.383.921	330,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F25	SEMINATIVO - PASCOLO ARB	1.506.803	4.383.393	353,2	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F26	VIGNETO	1.506.951	4.382.375	330,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F27	SEMINATIVO	1.510.916	4.382.685	360,0	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F28	SEMINATIVO IRR- SEMINATIVO	1.509.487	4.383.147	393,9	1,2	1,4	1,2	90,0	"Green house mode"	2,6
F29	ULIVETO - VIGNETO	1.510.101	4.382.110	367,4	1,2	1,4	1,2	90,0	"Green house mode"	2,6

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case		
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
F01	D10	9:02	34	0:20
F02	SEMINATIVO - PASCOLO ARB	217:03	247	1:27
F03	C2	6:20	30	0:16
F04	SEMINATIVO - PASCOLO	36:02	76	0:32
F05	SEMINATIVO	0:00	0	0:00
F06	C2	0:00	0	0:00
F07	C1	71:50	133	1:20
F08	C2	17:35	53	0:24
F09	A3 - Abitazione	29:49	89	0:28
F10	ENTE URBANO	58:19	95	1:02
F11	C2	46:50	79	0:48
F12	C2	97:51	117	1:20
F12	FABB RURALE	83:23	112	1:12
F12	C2	71:45	107	1:06
F13	C6	344:22	247	2:24
F14	ENTE URBANO	61:34	114	1:00
F15	ENTE URBANO	39:18	87	0:42
F16	A4 - Abitazione	40:45	89	0:40
F17	F3-C1	29:30	86	0:36
F18	A4 - Abitazione	57:01	90	0:51
F19	D10	164:54	110	2:45
F20	D10	0:00	0	0:00
F21	C2	10:00	38	0:23
F22	C2	10:31	40	0:24
F23	D10	83:56	131	1:21
F24	C2	75:25	111	0:59
F25	SEMINATIVO - PASCOLO ARB	56:52	76	0:58
F26	VIGNETO	8:03	37	0:20
F27	SEMINATIVO	64:16	117	0:48
F28	SEMINATIVO IRR- SEMINATIVO	224:00	239	1:37
F29	ULIVETO - VIGNETO	12:19	38	0:24

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]
SE01	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (3)	203:04
SE02	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (2)	177:06
SE03	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (4)	57:25
SE04	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (5)	179:50
SE05	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)	259:53
SE06	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)	237:59
SE07	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)	606:44

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F02 - SEMINATIVO - PASCOLO ARB

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:45 17:10	07:33 17:43	08:19 (SE02) 18:15	06:59 18:15	08:05 (SE02) 19:47	07:10 20:17
2	07:45 17:11	07:32 17:44	08:18 (SE02) 18:17	06:57 18:17	08:06 (SE02) 19:48	07:08 20:18
3	07:45 17:12	07:31 17:46	08:17 (SE02) 18:18	06:56 18:18	08:06 (SE02) 19:49	07:07 20:19
4	07:45 17:13	07:30 17:47	08:16 (SE02) 18:19	06:54 18:19	08:06 (SE02) 19:50	07:05 20:20
5	07:45 17:14	07:29 17:48	08:15 (SE02) 18:20	06:53 18:20	08:06 (SE02) 19:51	07:04 20:21
6	07:45 17:15	07:28 17:49	08:14 (SE02) 18:21	06:51 18:21	08:07 (SE02) 19:52	07:02 20:22
7	07:45 17:16	07:27 17:50	08:14 (SE02) 18:22	06:50 18:22	08:07 (SE02) 19:53	07:01 20:23
8	07:45 17:16	07:26 17:51	08:13 (SE02) 18:23	06:48 18:23	08:08 (SE02) 19:54	06:59 20:24
9	07:45 17:17	07:25 17:53	08:12 (SE02) 18:24	06:47 18:24	08:08 (SE02) 19:55	06:58 20:25
10	07:45 17:18	07:24 17:54	08:12 (SE02) 18:25	06:45 18:25	08:09 (SE02) 19:56	06:56 20:26
11	07:45 17:19	07:23 17:55	08:11 (SE02) 18:26	06:44 18:26	08:09 (SE02) 19:57	06:54 20:27
12	07:44 17:20	07:21 17:56	08:10 (SE02) 18:27	06:42 18:27	08:09 (SE02) 19:58	06:53 20:28
13	07:44 17:21	07:20 17:57	08:10 (SE02) 18:28	06:40 18:28	08:11 (SE02) 19:59	06:51 20:29
14	07:44 17:23	07:19 17:59	08:09 (SE02) 18:29	06:39 18:29	08:11 (SE02) 20:00	06:50 20:30
15	07:44 17:24	07:18 18:00	08:09 (SE02) 18:30	06:37 18:30	08:13 (SE02) 20:01	06:48 20:31
16	07:43 17:25	07:17 18:01	08:08 (SE02) 18:31	06:36 18:31	08:13 (SE02) 20:02	06:47 20:32
17	07:43 17:26	07:15 18:02	08:08 (SE02) 18:32	06:34 18:32	08:14 (SE02) 20:03	06:45 20:33
18	07:42 17:27	07:14 18:03	08:08 (SE02) 18:33	06:33 18:33	08:16 (SE02) 20:04	06:44 20:34
19	07:42 17:28	07:13 18:04	08:08 (SE02) 18:34	06:31 18:34	08:17 (SE02) 20:05	06:43 20:35
20	07:41 17:29	07:11 18:05	08:07 (SE02) 18:35	06:29 18:35	08:17 (SE02) 20:06	06:41 20:36
21	07:41 17:30	08:42 (SE02) 18:07	08:07 (SE02) 18:36	06:28 18:36	08:17 (SE02) 20:07	06:40 20:37
22	07:40 17:31	08:52 (SE02) 18:08	08:06 (SE02) 18:37	06:26 18:37	08:17 (SE02) 20:08	06:38 20:38
23	07:40 17:33	08:37 (SE02) 18:09	08:06 (SE02) 18:38	06:24 18:38	08:17 (SE02) 20:09	06:37 20:39
24	07:39 17:34	08:57 (SE02) 18:10	08:06 (SE02) 18:39	06:23 18:39	08:17 (SE02) 20:10	06:35 20:40
25	07:38 17:35	08:34 (SE02) 18:11	08:06 (SE02) 18:40	06:21 18:40	08:17 (SE02) 20:11	06:34 20:41
26	07:38 17:36	09:07 (SE02) 18:12	08:06 (SE02) 18:41	06:20 18:41	08:17 (SE02) 20:12	06:33 20:42
27	07:37 17:37	08:26 (SE02) 18:13	08:05 (SE02) 18:42	06:18 18:42	08:17 (SE02) 20:13	06:31 20:43
28	07:36 17:38	09:12 (SE02) 18:14	08:06 (SE02) 18:43	06:16 18:43	08:17 (SE02) 20:14	06:30 20:44
29	07:35 17:40	08:31 (SE02) 18:15	08:06 (SE02) 18:44	06:15 18:44	08:17 (SE02) 20:15	06:29 20:45
30	07:35 17:41	08:22 (SE02) 18:16	08:06 (SE02) 18:45	06:13 18:45	08:17 (SE02) 20:16	06:28 20:46
31	07:34 17:42	09:14 (SE02) 18:17	08:06 (SE02) 18:46	06:12 18:46	08:17 (SE02) 20:17	06:27 20:47
Potential sun hours	301	299	370	397	445	448
Total, worst case	432	2225	1737	107	935	1509

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F02 - SEMINATIVO - PASCOLO ARB
Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	06:00 20:56 50	06:26 (SE01) 20:38 27	06:44 (SE01) 19:57	07:19 19:08 68	08:49 (SE02) 17:24 77	07:42 (SE02) 17:01
2	06:00 20:56 50	06:26 (SE01) 20:37 25	06:45 (SE01) 19:55	07:20 19:07 70	08:48 (SE02) 17:22 76	07:42 (SE02) 17:01
3	06:01 20:56 51	06:26 (SE01) 20:36 23	06:46 (SE01) 19:54	07:21 19:05 72	08:47 (SE02) 17:21 74	07:43 (SE02) 17:00
4	06:01 20:55 50	06:26 (SE01) 20:35 20	06:47 (SE01) 19:52	07:22 19:03 74	08:46 (SE02) 17:20 72	07:44 (SE02) 17:00
5	06:02 20:55 51	06:26 (SE01) 20:34 17	06:48 (SE01) 19:51	07:23 19:02 75	08:45 (SE02) 17:19 71	07:44 (SE02) 17:00
6	06:02 20:55 51	06:26 (SE01) 20:33 13	06:48 (SE01) 19:49	07:24 19:00 77	08:44 (SE02) 17:18 69	07:46 (SE02) 17:00
7	06:03 20:55 50	06:27 (SE01) 20:31 6	06:50 (SE01) 19:47	07:25 18:59 79	08:43 (SE02) 17:17 67	07:47 (SE02) 17:00
8	06:04 20:54 51	06:27 (SE01) 20:30 9	06:51 (SE01) 19:46	07:26 18:57 80	08:42 (SE02) 17:16 65	07:48 (SE02) 17:00
9	06:04 20:54 51	06:27 (SE01) 20:29 10	06:51 (SE01) 19:44	07:27 18:56 82	08:41 (SE02) 17:15 63	07:49 (SE02) 17:00
10	06:05 20:54 51	06:27 (SE01) 20:28 11	07:00 19:43	07:28 18:54 82	08:41 (SE02) 17:14 60	07:50 (SE02) 17:00
11	06:06 20:53 51	06:27 (SE01) 20:27 12	07:01 19:41	07:29 (SE03) 18:53 83	08:40 (SE02) 17:13 58	07:52 (SE02) 17:00
12	06:06 20:53 50	06:28 (SE01) 20:25 13	07:02 19:39	07:30 (SE03) 18:51 84	08:39 (SE02) 17:12 55	07:54 (SE02) 17:00
13	06:07 20:52 49	06:29 (SE01) 20:24 14	07:03 19:38	07:31 (SE03) 18:49 85	08:39 (SE02) 17:11 52	07:55 (SE02) 17:00
14	06:08 20:52 49	06:30 (SE01) 20:23 15	07:03 19:36	07:32 (SE03) 18:48 86	08:38 (SE02) 17:10 49	07:56 (SE02) 17:00
15	06:08 20:51 48	06:30 (SE01) 20:21 16	07:04 19:34	07:33 (SE03) 18:47 86	08:38 (SE02) 17:10 46	07:58 (SE02) 17:01
16	06:09 20:51 47	06:31 (SE01) 20:20 17	07:05 19:33	07:34 (SE03) 18:45 86	08:38 (SE02) 17:09 42	08:01 (SE02) 17:01
17	06:10 20:50 47	06:32 (SE01) 20:19 18	07:06 19:31	07:35 (SE03) 18:44 87	08:37 (SE02) 17:08 38	08:03 (SE02) 17:01
18	06:11 20:50 46	06:32 (SE01) 20:17 19	07:07 19:29	07:36 (SE03) 18:42 87	08:37 (SE02) 17:07 33	08:05 (SE02) 17:01
19	06:11 20:49 45	06:33 (SE01) 20:16 20	07:08 19:28	07:37 (SE03) 18:41 86	08:38 (SE02) 17:07 28	08:08 (SE02) 17:02
20	06:12 20:48 44	06:34 (SE01) 20:15 21	07:09 19:26	07:38 (SE03) 18:39 86	08:38 (SE02) 17:06 20	08:12 (SE02) 17:03
21	06:13 20:48 43	06:35 (SE01) 20:13 22	07:10 19:25	07:39 (SE03) 18:38 87	08:37 (SE02) 17:05 10	08:18 (SE02) 17:03
22	06:14 20:47 42	06:36 (SE01) 20:12 23	07:11 19:23	07:41 (SE03) 18:36 87	08:37 (SE02) 17:05 8	08:28 (SE02) 17:03
23	06:15 20:46 41	06:36 (SE01) 20:10 24	07:12 19:21	07:42 (SE03) 18:35 86	08:37 (SE02) 17:04 6	08:32 (SE02) 17:04
24	06:16 20:45 40	06:37 (SE01) 20:09 25	07:13 19:20	07:43 (SE03) 18:34 86	08:37 (SE02) 17:04 4	08:33 (SE02) 17:05
25	06:16 20:44 39	06:38 (SE01) 20:07 26	07:14 19:18	07:44 (SE03) 18:32 84	08:37 (SE02) 17:03 2	08:34 (SE02) 17:06
26	06:17 20:44 37	06:39 (SE01) 20:06 27	07:15 19:16	07:45 (SE03) 18:31 84	08:38 (SE02) 17:03 0	08:35 (SE02) 17:07
27	06:18 20:43 36	06:40 (SE01) 20:04 28	07:16 19:15	07:46 (SE03) 18:30 83	08:38 (SE02) 17:02 0	08:36 (SE02) 17:08
28	06:19 20:42 34	06:41 (SE01) 20:03 29	07:17 19:13	07:47 (SE03) 18:29 82	08:39 (SE02) 17:02 0	08:37 (SE02) 17:09
29	06:20 20:41 33	06:41 (SE01) 20:01 30	07:17 19:11	07:48 (SE03) 18:27 80	08:39 (SE02) 17:02 0	08:38 (SE02) 17:10
30	06:21 20:40 31	06:42 (SE01) 20:00 31	07:18 19:10	07:49 (SE03) 18:26 80	08:40 (SE02) 17:01 0	08:39 (SE02) 17:11
31	06:22 20:39 29	06:43 (SE01) 19:58	07:19 19:09	07:50 (SE03) 18:25 79	08:40 (SE02) 17:01 0	08:40 (SE02) 17:12
Potential sun hours	455	425	374	347	301	292
Total, worst case	1387	131	900	2535	1125	292

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker
			(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F05 - SEMINATIVO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:45 17:10	07:33 17:43	06:59 18:15	07:10 19:47	06:26 20:17	05:59 20:45	06:00 20:56	06:23 20:38	06:51 19:57	07:19 19:08	06:51 17:24	07:25 17:01
2	07:45 17:11	07:32 17:44	06:57 18:16	07:08 19:48	06:25 20:18	05:59 20:46	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07	06:53 17:22	07:26 17:01
3	07:45 17:12	07:31 17:45	06:56 18:18	07:07 19:49	06:24 20:19	05:58 20:46	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05	06:54 17:21	07:27 17:00
4	07:45 17:13	07:30 17:47	06:54 18:19	07:05 19:50	06:23 20:20	05:58 20:47	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 17:20	07:28 17:00
5	07:45 17:14	07:29 17:48	06:53 18:20	07:04 19:51	06:21 20:21	05:58 20:48	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	06:56 17:19	07:29 17:00
6	07:45 17:15	07:28 17:49	06:51 18:21	07:02 19:52	06:20 20:22	05:57 20:48	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	06:57 17:18	07:30 17:00
7	07:45 17:15	07:27 17:50	06:50 18:22	07:01 19:53	06:19 20:23	05:57 20:49	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59	06:58 17:17	07:30 17:00
8	07:45 17:16	07:26 17:51	06:48 18:23	06:59 19:54	06:18 20:24	05:57 20:50	06:04 20:54	06:29 20:30	06:58 19:46	07:26 18:57	06:59 17:16	07:31 17:00
9	07:45 17:17	07:25 17:53	06:47 18:24	06:57 19:55	06:17 20:25	05:57 20:50	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:56	07:00 17:15	07:32 17:00
10	07:45 17:18	07:24 17:54	06:45 18:25	06:56 19:56	06:16 20:26	05:56 20:51	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	07:02 17:14	07:33 17:00
11	07:45 17:19	07:22 17:55	06:44 18:26	06:54 19:57	06:15 20:27	05:56 20:51	06:06 20:53	06:32 20:27	07:01 19:41	07:29 18:52	07:03 17:13	07:34 17:00
12	07:44 17:20	07:21 17:56	06:42 18:27	06:53 19:58	06:14 20:28	05:56 20:52	06:06 20:53	06:33 20:25	07:02 19:39	07:30 18:51	07:04 17:12	07:35 17:00
13	07:44 17:21	07:20 17:57	06:40 18:28	06:51 19:59	06:13 20:29	05:56 20:52	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49	07:05 17:11	07:35 17:00
14	07:44 17:23	07:19 17:58	06:39 18:29	06:50 20:00	06:12 20:30	05:56 20:53	06:08 20:52	06:35 20:23	07:03 19:36	07:32 18:48	07:06 17:10	07:36 17:01
15	07:44 17:24	07:18 18:00	06:37 18:30	06:48 20:01	06:11 20:31	05:56 20:53	06:08 20:51	06:36 20:21	07:04 19:34	07:33 18:46	07:07 17:10	07:37 17:01
16	07:43 17:25	07:16 18:01	06:36 18:31	06:47 20:02	06:10 20:32	05:56 20:53	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	07:08 17:09	07:38 17:01
17	07:43 17:26	07:15 18:02	06:34 18:32	06:45 20:03	06:09 20:33	05:56 20:54	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:44	07:10 17:08	07:38 17:01
18	07:42 17:27	07:14 18:03	06:32 18:33	06:44 20:04	06:08 20:33	05:56 20:54	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42	07:11 17:07	07:39 17:02
19	07:42 17:28	07:13 18:04	06:31 18:34	06:42 20:05	06:07 20:34	05:56 20:54	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	07:12 17:07	07:40 17:02
20	07:41 17:29	07:11 18:05	06:29 18:35	06:41 20:06	06:07 20:35	05:56 20:55	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39	07:13 17:06	07:40 17:03
21	07:41 17:30	07:10 18:06	06:28 18:36	06:40 20:07	06:06 20:36	05:57 20:55	06:13 20:48	06:41 20:13	07:10 19:24	07:39 18:38	07:14 17:05	07:41 17:03
22	07:40 17:31	07:09 18:08	06:26 18:37	06:38 20:08	06:05 20:37	05:57 20:55	06:14 20:47	06:42 20:12	07:11 19:23	07:41 18:36	07:15 17:05	07:41 17:03
23	07:40 17:33	07:07 18:09	06:24 18:38	06:37 20:09	06:04 20:38	05:57 20:55	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35	07:16 17:04	07:42 17:04
24	07:39 17:34	07:06 18:10	06:23 18:39	06:35 20:10	06:04 20:39	05:57 20:55	06:16 20:45	06:44 20:09	07:13 19:20	07:43 18:34	07:17 17:04	07:42 17:05
25	07:38 17:35	07:04 18:11	06:21 18:40	06:34 20:11	06:03 20:40	05:58 20:56	06:16 20:44	06:45 20:07	07:14 19:18	06:44 17:32	07:18 17:03	07:43 17:05
26	07:38 17:36	07:03 18:12	06:20 18:41	06:33 20:12	06:02 20:40	05:58 20:56	06:17 20:44	06:46 20:06	07:15 19:16	06:45 17:31	07:19 17:03	07:43 17:06
27	07:37 17:37	07:02 18:13	06:18 18:42	06:31 20:13	06:02 20:41	05:58 20:56	06:18 20:43	06:47 20:04	07:16 19:15	06:46 17:30	07:21 17:02	07:43 17:06
28	07:36 17:38	07:00 18:14	06:16 18:43	06:30 20:14	06:01 20:42	05:59 20:56	06:19 20:42	06:48 20:03	07:16 19:13	06:47 17:29	07:22 17:02	07:44 17:07
29	07:35 17:40		07:15 19:44	06:29 20:15	06:00 20:43	05:59 20:56	06:20 20:41	06:49 20:01	07:17 19:11	06:48 17:27	07:23 17:01	07:44 17:08
30	07:34 17:41		07:13 19:45	06:28 20:16	06:00 20:44	05:59 20:56	06:21 20:40	06:50 20:00	07:18 19:10	06:49 17:26	07:24 17:01	07:44 17:08
31	07:34 17:42		07:12 19:46		05:59 20:44		06:22 20:39	06:50 19:58		06:50 17:25		07:45 17:09
Potential sun hours	301	299	370	397	444	448	455	425	374	347	301	292
Total, worst case												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F06 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:45 17:10	07:33 17:43	06:59 18:15	07:10 19:47	06:26 20:17	05:59 20:45	06:00 20:56	06:23 20:38	06:51 19:57	07:19 19:08	06:51 17:24	07:25 17:01
2	07:45 17:11	07:32 17:44	06:57 18:16	07:08 19:48	06:25 20:18	05:59 20:46	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07	06:53 17:22	07:26 17:01
3	07:45 17:12	07:31 17:45	06:56 18:18	07:07 19:49	06:24 20:19	05:58 20:46	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05	06:54 17:21	07:27 17:00
4	07:45 17:13	07:30 17:47	06:54 18:19	07:05 19:50	06:23 20:20	05:58 20:47	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 17:20	07:28 17:00
5	07:45 17:14	07:29 17:48	06:53 18:20	07:04 19:51	06:21 20:21	05:58 20:48	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	06:56 17:19	07:29 17:00
6	07:45 17:15	07:28 17:49	06:51 18:21	07:02 19:52	06:20 20:22	05:57 20:48	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	06:57 17:18	07:30 17:00
7	07:45 17:15	07:27 17:50	06:50 18:22	07:01 19:53	06:19 20:23	05:57 20:49	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59	06:58 17:17	07:30 17:00
8	07:45 17:16	07:26 17:51	06:48 18:23	06:59 19:54	06:18 20:24	05:57 20:50	06:04 20:54	06:29 20:30	06:58 19:46	07:26 18:57	06:59 17:16	07:31 17:00
9	07:45 17:17	07:25 17:53	06:47 18:24	06:57 19:55	06:17 20:25	05:57 20:50	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:56	07:00 17:15	07:32 17:00
10	07:45 17:18	07:24 17:54	06:45 18:25	06:56 19:56	06:16 20:26	05:56 20:51	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	07:02 17:14	07:33 17:00
11	07:45 17:19	07:22 17:55	06:43 18:26	06:54 19:57	06:15 20:27	05:56 20:51	06:06 20:53	06:32 20:27	07:01 19:41	07:29 18:52	07:03 17:13	07:34 17:00
12	07:44 17:20	07:21 17:56	06:42 18:27	06:53 19:58	06:14 20:28	05:56 20:52	06:06 20:53	06:33 20:25	07:02 19:39	07:30 18:51	07:04 17:12	07:35 17:00
13	07:44 17:21	07:20 17:57	06:40 18:28	06:51 19:59	06:13 20:29	05:56 20:52	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49	07:05 17:11	07:35 17:00
14	07:44 17:23	07:19 17:58	06:39 18:29	06:50 20:00	06:12 20:30	05:56 20:53	06:08 20:52	06:35 20:23	07:03 19:36	07:32 18:48	07:06 17:10	07:36 17:01
15	07:44 17:24	07:18 18:00	06:37 18:30	06:48 20:01	06:11 20:31	05:56 20:53	06:08 20:51	06:36 20:21	07:04 19:34	07:33 18:46	07:07 17:10	07:37 17:01
16	07:43 17:25	07:16 18:01	06:36 18:31	06:47 20:02	06:10 20:32	05:56 20:53	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	07:08 17:09	07:38 17:01
17	07:43 17:26	07:15 18:02	06:34 18:32	06:45 20:03	06:09 20:33	05:56 20:54	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:44	07:10 17:08	07:38 17:01
18	07:42 17:27	07:14 18:03	06:32 18:33	06:44 20:04	06:08 20:33	05:56 20:54	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42	07:11 17:07	07:39 17:02
19	07:42 17:28	07:13 18:04	06:31 18:34	06:42 20:05	06:07 20:34	05:56 20:54	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	07:12 17:07	07:40 17:02
20	07:41 17:29	07:11 18:05	06:29 18:35	06:41 20:06	06:06 20:35	05:56 20:55	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39	07:13 17:06	07:40 17:03
21	07:41 17:30	07:10 18:06	06:28 18:36	06:40 20:07	06:06 20:36	05:57 20:55	06:13 20:48	06:41 20:13	07:10 19:24	07:39 18:38	07:14 17:05	07:41 17:03
22	07:40 17:31	07:09 18:08	06:26 18:37	06:38 20:08	06:05 20:37	05:57 20:55	06:14 20:47	06:42 20:12	07:11 19:23	07:41 18:36	07:15 17:05	07:41 17:03
23	07:40 17:33	07:07 18:09	06:24 18:38	06:37 20:09	06:04 20:38	05:57 20:55	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35	07:16 17:04	07:42 17:04
24	07:39 17:34	07:06 18:10	06:23 18:39	06:35 20:10	06:04 20:39	05:57 20:55	06:15 20:45	06:44 20:09	07:13 19:20	07:43 18:34	07:17 17:04	07:42 17:04
25	07:38 17:35	07:04 18:11	06:21 18:40	06:34 20:11	06:03 20:40	05:58 20:56	06:16 20:44	06:45 20:07	07:14 19:18	06:44 17:32	07:18 17:03	07:43 17:05
26	07:38 17:36	07:03 18:12	06:20 18:41	06:33 20:12	06:02 20:40	05:58 20:56	06:17 20:44	06:46 20:06	07:15 19:16	06:45 17:31	07:19 17:03	07:43 17:06
27	07:37 17:37	07:02 18:13	06:18 18:42	06:31 20:13	06:02 20:41	05:58 20:56	06:18 20:43	06:47 20:04	07:15 19:15	06:46 17:30	07:21 17:02	07:43 17:06
28	07:36 17:38	07:00 18:14	06:16 18:43	06:30 20:14	06:01 20:42	05:59 20:56	06:19 20:42	06:48 20:03	07:16 19:13	06:47 17:28	07:22 17:02	07:44 17:07
29	07:35 17:40		07:15 19:44	06:29 20:15	06:00 20:43	05:59 20:56	06:20 20:41	06:49 20:01	07:17 19:11	06:48 17:27	07:23 17:01	07:44 17:08
30	07:34 17:41		07:13 19:45	06:27 20:16	06:00 20:44	05:59 20:56	06:21 20:40	06:50 20:00	07:18 19:10	06:49 17:26	07:24 17:01	07:44 17:08
31	07:34 17:42		07:12 19:46		05:59 20:44		06:22 20:39	06:50 19:58		06:50 17:25		07:45 17:09
Potential sun hours	301	299	370	397	445	448	455	425	374	347	301	292
Total, worst case												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F07 - C1
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June				
1	07:45	07:33	06:59	07:10	07:28 (SE05)	06:26	07:14 (SE05)	05:59	06:20 (SE06)	
	17:10	17:43	18:15	19:47	19:26 (SE02)	20:17	18 07:32 (SE05)	20:45	11 06:31 (SE06)	
2	07:45	07:32	06:57	07:08	07:27 (SE05)	06:25	07:18 (SE05)	05:59	06:19 (SE06)	
	17:11	17:44	18:16	19:48	19:28 (SE02)	20:18	10 07:28 (SE05)	20:46	12 06:31 (SE06)	
3	07:45	07:31	06:56	07:07	07:25 (SE05)	06:24		05:58	06:19 (SE06)	
	17:12	17:45	18:18	19:49	19:28 (SE02)	20:19		20:46	12 06:31 (SE06)	
4	07:45	07:30	06:54	07:05	07:23 (SE05)	06:23		05:58	06:19 (SE06)	
	17:13	17:47	18:19	19:50	19:29 (SE02)	20:20		20:47	13 06:32 (SE06)	
5	07:45	07:29	06:53	07:04	07:22 (SE05)	06:21		05:57	06:19 (SE06)	
	17:14	17:48	18:20	19:51	19:30 (SE02)	20:21		20:48	13 06:32 (SE06)	
6	07:45	07:28	06:51	07:02	07:20 (SE05)	06:20		05:57	06:18 (SE06)	
	17:15	17:49	18:21	19:52	19:31 (SE02)	20:22		20:48	13 06:31 (SE06)	
7	07:45	07:27	06:50	07:01	07:19 (SE05)	06:19		05:57	06:18 (SE06)	
	17:15	17:50	18:22	19:53	19:32 (SE02)	20:23		20:49	14 06:32 (SE06)	
8	07:45	07:26	06:48	06:59	07:17 (SE05)	06:18		05:57	06:18 (SE06)	
	17:16	17:51	18:23	19:54	19:33 (SE02)	20:24		20:50	14 06:32 (SE06)	
9	07:45	07:25	06:47	06:57	07:16 (SE05)	06:17		05:57	06:18 (SE06)	
	17:17	17:53	18:24	19:55	19:34 (SE02)	20:25		20:50	14 06:32 (SE06)	
10	07:45	07:24	06:45	06:56	07:14 (SE05)	06:16		05:56	06:18 (SE06)	
	17:18	17:54	18:25	19:56	19:35 (SE02)	20:26		20:51	15 06:33 (SE06)	
11	07:45	07:22	06:43	06:54	07:13 (SE05)	06:15		05:56	06:18 (SE06)	
	17:19	17:55	18:26	19:57	19:36 (SE02)	20:27		20:51	15 06:33 (SE06)	
12	07:44	07:21	06:42	06:53	07:11 (SE05)	06:14		05:56	06:18 (SE06)	
	17:20	17:56	18:27	19:58	19:37 (SE02)	20:28		20:52	15 06:33 (SE06)	
13	07:44	07:20	06:40	06:51	07:10 (SE05)	06:13		05:56	06:17 (SE06)	
	17:21	17:57	18:28	19:59	19:38 (SE02)	20:29		20:52	15 06:32 (SE06)	
14	07:44	07:19	06:39	06:50	07:08 (SE05)	06:12		05:56	06:17 (SE06)	
	17:22	17:58	18:29	20:00	19:39 (SE02)	20:30		20:53	15 06:32 (SE06)	
15	07:44	07:18	06:37	06:48	07:07 (SE07)	06:11		05:56	06:18 (SE06)	
	17:24	18:00	18:30	20:01	19:40 (SE02)	20:31		20:53	15 06:33 (SE06)	
16	07:43	07:16	06:36	06:47	07:05 (SE07)	06:10		05:56	06:18 (SE06)	
	17:25	18:01	18:31	20:02	19:39 (SE02)	20:32		20:53	16 06:34 (SE06)	
17	07:43	07:15	06:34	06:45	07:04 (SE07)	06:09		05:56	06:18 (SE06)	
	17:26	18:02	18:32	20:03	19:38 (SE02)	20:33		20:54	16 06:34 (SE06)	
18	07:42	07:14	06:32	06:44	07:02 (SE07)	06:08		05:56	06:18 (SE06)	
	17:27	18:03	18:33	20:04	19:37 (SE02)	20:33		20:54	16 06:34 (SE06)	
19	07:42	07:13	06:31	06:42	07:01 (SE07)	06:07		05:56	06:18 (SE06)	
	17:28	18:04	18:34	20:05	19:36 (SE02)	20:34		20:54	16 06:34 (SE06)	
20	07:41	07:11	06:29	06:41	06:59 (SE07)	06:06		05:56	06:18 (SE06)	
	17:29	18:05	18:35	20:06	19:34 (SE02)	20:35		20:55	16 06:34 (SE06)	
21	07:41	07:10	06:28	06:40	06:58 (SE07)	06:06	06:26 (SE06)	05:57	06:18 (SE06)	
	17:30	18:06	18:36	20:07	19:33 (SE02)	20:36	1 06:27 (SE06)	20:55	16 06:34 (SE06)	
22	07:40	07:09	06:26	06:38	06:57 (SE07)	06:05	06:25 (SE06)	05:57	06:19 (SE06)	
	17:31	18:08	18:37	20:08	19:32 (SE02)	20:37	2 06:27 (SE06)	20:55	16 06:35 (SE06)	
23	07:40	07:07	06:24	06:37	07:03 (SE05)	06:04	06:24 (SE06)	05:57	06:19 (SE06)	
	17:33	18:09	18:38	20:09	19:29 (SE02)	20:38	3 06:27 (SE06)	20:55	16 06:35 (SE06)	
24	07:39	07:06	06:23	06:35	07:04 (SE05)	06:04	06:24 (SE06)	05:57	06:19 (SE06)	
	17:34	18:10	18:39	20:10	19:26 (SE02)	20:39	5 06:29 (SE06)	20:55	16 06:35 (SE06)	
25	07:38	07:04	06:21	06:34	07:05 (SE05)	06:03	06:23 (SE06)	05:58	06:19 (SE06)	
	17:35	18:11	18:40	20:11	19:25 (SE02)	20:40	6 06:29 (SE06)	20:56	16 06:35 (SE06)	
26	07:38	07:03	06:20	06:33	07:06 (SE05)	06:02	06:23 (SE06)	05:58	06:20 (SE06)	
	17:36	18:12	18:41	20:12	19:24 (SE02)	20:40	7 06:30 (SE06)	20:56	16 06:36 (SE06)	
27	07:37	07:02	06:18	06:31	07:07 (SE05)	06:02	06:22 (SE06)	05:58	06:20 (SE06)	
	17:37	18:13	18:42	20:13	19:23 (SE02)	20:41	7 06:29 (SE06)	20:56	15 06:35 (SE06)	
28	07:36	07:00	06:16	06:30	07:09 (SE05)	06:01	06:22 (SE06)	05:59	06:20 (SE06)	
	17:38	18:14	18:43	20:14	19:22 (SE02)	20:42	8 06:30 (SE06)	20:56	15 06:35 (SE06)	
29	07:35		07:15	07:33 (SE05)	06:29	07:11 (SE05)	06:21 (SE06)	05:59	06:21 (SE06)	
	17:40		19:44	6 07:39 (SE05)	20:15	27 07:38 (SE05)	20:43	9 06:30 (SE06)	20:56	15 06:36 (SE06)
30	07:34		07:13	07:31 (SE05)	06:27	07:12 (SE05)	06:21 (SE06)	05:59	06:21 (SE06)	
	17:41		19:45	11 07:42 (SE05)	20:16	23 07:35 (SE05)	20:44	10 06:31 (SE06)	20:56	15 06:36 (SE06)
31	07:34		07:12	07:30 (SE05)			06:20 (SE06)			
	17:42		19:46	15 07:45 (SE05)			20:44	10 06:30 (SE06)		
Potential sun hours	301	299	370	397	445	96	448			
Total, worst case			32	1717					442	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F07 - C1

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	06:00	06:22 (SE06)	06:23	06:51	07:12 (SE05)	07:19
	20:56	06:37 (SE06)	20:38	19:57	19:35 (SE02)	19:08
2	06:00	06:22 (SE06)	06:23	06:52	07:13 (SE05)	07:20
	20:56	06:37 (SE06)	20:37	19:55	19:34 (SE02)	19:07
3	06:01	06:23 (SE06)	06:24	06:53	07:13 (SE05)	07:21
	20:55	06:37 (SE06)	20:36	19:54	19:31 (SE02)	19:05
4	06:01	06:23 (SE06)	06:25	06:54	07:14 (SE05)	07:22
	20:55	06:37 (SE06)	20:35	19:52	19:30 (SE02)	19:03
5	06:02	06:24 (SE06)	06:26	06:55	07:15 (SE05)	07:23
	20:55	06:38 (SE06)	20:34	19:50	19:29 (SE02)	19:02
6	06:02	06:24 (SE06)	06:27	06:56	07:16 (SE05)	07:24
	20:55	06:38 (SE06)	20:32	19:49	19:27 (SE02)	19:00
7	06:03	06:25 (SE06)	06:28	06:57	07:17 (SE05)	07:25
	20:55	06:38 (SE06)	20:31	19:47	19:26 (SE02)	18:59
8	06:04	06:26 (SE06)	06:29	06:58	07:18 (SE05)	07:26
	20:54	06:39 (SE06)	20:30	19:46	19:24 (SE02)	18:57
9	06:04	06:26 (SE06)	06:30	06:59	07:19 (SE05)	07:27
	20:54	06:38 (SE06)	20:29	19:44	19:23 (SE02)	18:56
10	06:05	06:27 (SE06)	06:31	07:00	07:20 (SE05)	07:28
	20:54	06:39 (SE06)	20:28	19:42	19:21 (SE02)	18:54
11	06:06	06:27 (SE06)	06:32	07:01	07:20 (SE05)	07:29
	20:53	06:38 (SE06)	20:27	19:41	19:19 (SE02)	18:52
12	06:06	06:28 (SE06)	06:33	07:02	07:21 (SE05)	07:30
	20:53	06:39 (SE06)	20:25	19:39	19:18 (SE02)	18:51
13	06:07	06:29 (SE06)	06:34	07:02	07:22 (SE05)	07:31
	20:52	06:39 (SE06)	20:24	19:38	19:17 (SE02)	18:49
14	06:08	06:29 (SE06)	06:35	07:03	07:23 (SE05)	07:32
	20:52	06:38 (SE06)	20:23	19:36	19:16 (SE02)	18:48
15	06:08	06:30 (SE06)	06:35	07:04	07:23 (SE05)	07:33
	20:51	06:39 (SE06)	20:21	19:34	19:15 (SE02)	18:46
16	06:09	06:31 (SE06)	06:36	07:05	07:24 (SE05)	07:34
	20:51	06:39 (SE06)	20:20	19:33	19:14 (SE02)	18:45
17	06:10	06:32 (SE06)	06:37	07:06	07:25 (SE05)	07:35
	20:50	06:39 (SE06)	20:19	19:31	19:13 (SE02)	18:44
18	06:11	06:32 (SE06)	06:38	07:07	07:26 (SE05)	07:36
	20:50	06:38 (SE06)	20:17	19:29	19:12 (SE02)	18:42
19	06:11	06:33 (SE06)	06:39	07:08	07:27 (SE05)	07:37
	20:49	06:38 (SE06)	20:16	19:28	19:11 (SE02)	18:41
20	06:12	06:34 (SE06)	06:40	07:09	07:28 (SE05)	07:38
	20:48	06:38 (SE06)	20:15	19:26	19:10 (SE02)	18:39
21	06:13	06:35 (SE06)	06:41	07:10	07:29 (SE05)	07:39
	20:48	06:38 (SE06)	20:13	19:24	19:09 (SE02)	18:38
22	06:14	06:36 (SE06)	06:42	07:11	07:30 (SE05)	07:40
	20:47	06:37 (SE06)	20:12	19:23	19:08 (SE02)	18:37
23	06:15		06:43	07:12	07:31 (SE05)	07:41
	20:46		20:10	19:21	19:07 (SE02)	18:35
24	06:15		06:44	07:13	07:32 (SE05)	07:42
	20:45		20:09	19:20	19:06 (SE02)	18:34
25	06:16		06:45	07:14	07:33 (SE05)	07:43
	20:44		20:07	19:18	19:05 (SE02)	18:32
26	06:17		06:46	07:15	07:34 (SE05)	07:44
	20:44		20:06	19:16	19:04 (SE02)	18:31
27	06:18		06:47	07:15	07:35 (SE05)	07:45
	20:43		20:04	19:15	19:03 (SE02)	18:30
28	06:19		06:48	07:16	07:36 (SE05)	07:46
	20:42		20:03	19:13	19:02 (SE02)	18:28
29	06:20		06:49	07:17	07:37 (SE05)	07:47
	20:41		20:01	19:11	19:01 (SE02)	18:27
30	06:21		06:50	07:18	07:38 (SE05)	07:48
	20:40		20:00	19:10	19:00 (SE02)	18:26
31	06:22		06:50	07:18	07:39 (SE05)	07:49
	20:39		19:58	19:37 (SE02)	19:00 (SE02)	18:25
Potential sun hours	455	425	374	347	301	292
Total, worst case	220	1199	604			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F10 - ENTE URBANO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March		April		May		June
1	07:45 17:10	07:33 17:43	06:59 18:15		07:10 19:47		19:10 (SE07) 06:26		18:52 (SE07) 05:59
2	07:45 17:11	07:32 17:44	06:57 18:16		07:08 19:48	7	19:17 (SE07) 06:25	45	19:43 (SE06) 20:45
3	07:45 17:12	07:31 17:45	06:56 18:17		07:07 19:49	18	19:04 (SE07) 06:25	38	18:54 (SE07) 05:58
4	07:45 17:13	07:30 17:47	06:54 18:18		07:05 19:50	24	19:22 (SE07) 06:24	28	19:41 (SE06) 20:46
5	07:45 17:13	07:29 17:48	06:53 18:20		07:04 19:51	29	19:01 (SE07) 06:24	16	18:56 (SE07) 05:58
6	07:45 17:14	07:28 17:49	06:51 18:21		07:02 19:52	33	19:25 (SE07) 06:21	8	19:38 (SE06) 20:46
7	07:45 17:15	07:27 17:50	06:50 18:22		07:00 19:53	36	18:58 (SE07) 06:22		18:58 (SE07) 05:58
8	07:45 17:16	07:26 17:51	06:48 18:23		06:59 19:54	38	19:27 (SE07) 06:20		19:14 (SE07) 20:47
9	07:45 17:17	07:25 17:52	06:46 18:24		06:57 19:55	41	19:29 (SE07) 06:21		19:02 (SE07) 05:57
10	07:45 17:18	07:23 17:54	06:45 18:25	6	17:58 (SE05) 06:56	42	18:54 (SE07) 06:20		19:10 (SE07) 20:48
11	07:45 17:19	07:22 17:55	06:43 18:26	9	18:04 (SE05) 06:54	44	19:31 (SE07) 06:19		05:57
12	07:44 17:20	07:21 17:56	06:42 18:27	13	17:56 (SE05) 06:54	45	18:53 (SE07) 06:18		05:57
13	07:44 17:21	07:20 17:57	06:40 18:28	15	18:05 (SE05) 06:51	46	19:33 (SE07) 06:17		20:49
14	07:44 17:22	07:19 17:58	06:39 18:29	16	17:53 (SE05) 06:53	47	18:48 (SE07) 06:15		20:50
15	07:43 17:23	07:18 17:59	06:37 18:30	18	18:06 (SE05) 06:51	48	19:33 (SE07) 06:14		20:51
16	07:43 17:25	07:16 18:01	06:35 18:31	19	18:08 (SE05) 06:51	49	18:47 (SE07) 06:14		20:52
17	07:43 17:26	07:15 18:02	06:34 18:32	18	17:52 (SE05) 06:50	50	19:34 (SE07) 06:13		20:53
18	07:42 17:27	07:14 18:03	06:32 18:33	18	18:09 (SE05) 06:48	51	18:45 (SE07) 06:11		20:54
19	07:42 17:28	07:12 18:04	06:31 18:34	16	17:51 (SE05) 06:44	52	19:39 (SE06) 20:31		20:55
20	07:41 17:29	07:11 18:05	06:29 18:35	14	18:09 (SE05) 20:03	53	18:45 (SE07) 06:10		20:56
21	07:41 17:30	07:10 18:06	06:28 18:36	9	17:52 (SE05) 06:42	54	19:41 (SE06) 20:32		20:57
22	07:40 17:31	07:08 18:07	06:26 18:37		17:51 (SE05) 06:41	55	18:46 (SE07) 06:09		20:58
23	07:40 17:32	07:07 18:09	06:24 18:38		18:09 (SE05) 20:03	56	19:42 (SE06) 20:32		20:59
24	07:39 17:34	07:06 18:10	06:23 18:39		17:52 (SE05) 06:42	57	18:45 (SE07) 06:08		21:00
25	07:38 17:35	07:04 18:11	06:21 18:40		18:08 (SE05) 20:05	58	19:44 (SE06) 20:34		21:01
26	07:37 17:36	07:03 18:12	06:19 18:41		17:52 (SE05) 06:41	59	18:45 (SE07) 06:07		21:02
27	07:37 17:37	07:01 18:13	06:18 18:42		18:08 (SE05) 20:06	60	19:44 (SE06) 20:35		21:03
28	07:36 17:38	07:00 18:14	06:16 18:43		17:55 (SE05) 06:39	61	18:45 (SE07) 06:06		21:04
29	07:35 17:39		07:15 19:44		18:04 (SE05) 20:07	62	19:45 (SE06) 20:36		21:05
30	07:34 17:41		07:13 19:45		06:38 20:08	63	18:46 (SE07) 06:05		21:06
31	07:34 17:42		07:11 19:46		06:37 20:09	64	19:47 (SE06) 20:37		21:07
Potential sun hours	301	299	370		397		445		448
Total, worst case				171		1431		135	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F10 - ENTE URBANO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December		
1	06:00 20:56	06:22 20:38	06:51 19:57	18:48 (SE07) 19:33 (SE07)	07:19 19:08	18:33 (SE05) 17:23	06:51 07:25	
2	06:00 20:55	06:23 20:37	06:52 19:55	18:47 (SE07) 19:31 (SE07)	07:20 19:06	18:33 (SE05) 17:22	06:52 17:00	
3	06:01 20:55	06:24 20:36	06:53 19:53	18:48 (SE07) 19:30 (SE07)	07:21 19:05	18:35 (SE05) 17:21	06:54 17:00	
4	06:01 20:55	06:25 20:35	06:54 19:52	18:48 (SE07) 19:29 (SE07)	07:22 19:03	18:39 (SE05) 17:20	06:55 17:00	
5	06:02 20:55	06:26 20:33	06:55 19:50	18:49 (SE07) 19:27 (SE07)	07:23 19:02		06:56 17:00	
6	06:02 20:55	06:27 20:32	06:56 19:49	18:50 (SE07) 19:26 (SE07)	07:24 19:00		06:57 17:00	
7	06:03 20:54	06:28 20:31	06:57 19:47	18:51 (SE07) 19:24 (SE07)	07:25 18:59		06:58 17:00	
8	06:03 20:54	06:29 20:30	19:10 (SE07) 19:21 (SE07)	06:58 19:46	18:53 (SE07) 19:22 (SE07)	07:26 18:57	06:59 17:00	
9	06:04 20:54	06:30 20:29	19:07 (SE07) 19:25 (SE07)	06:59 19:44	18:55 (SE07) 19:20 (SE07)	07:27 18:55	07:00 17:00	
10	06:05 20:53	06:31 20:28	19:04 (SE07) 19:48 (SE06)	07:00 19:42	18:56 (SE07) 19:16 (SE07)	07:28 18:54	07:02 17:00	
11	06:05 20:53	06:32 20:26	19:02 (SE07) 19:50 (SE06)	07:00 19:41	19:01 (SE07) 19:10 (SE07)	07:29 18:52	07:03 17:00	
12	06:06 20:53	06:33 20:25	19:01 (SE07) 19:52 (SE06)	07:01 19:39		07:30 18:51	07:04 17:00	
13	06:07 20:52	06:33 20:24	18:59 (SE07) 19:53 (SE06)	07:02 19:37		07:31 18:49	07:05 17:00	
14	06:07 20:52	06:34 20:23	18:57 (SE07) 19:53 (SE06)	07:03 19:36		07:32 18:48	07:06 17:00	
15	06:08 20:51	06:35 20:21	18:56 (SE07) 19:54 (SE06)	07:04 19:34		07:33 18:46	07:07 17:01	
16	06:09 20:51	06:36 20:20	18:54 (SE07) 19:54 (SE06)	07:05 19:33		07:34 18:45	07:08 17:01	
17	06:10 20:50	06:37 20:19	18:54 (SE07) 19:54 (SE06)	07:06 19:31		07:35 18:43	07:09 17:01	
18	06:10 20:49	06:38 20:17	18:53 (SE07) 19:55 (SE06)	07:07 19:29		07:36 18:42	07:11 17:02	
19	06:11 20:49	06:39 20:16	18:52 (SE07) 19:54 (SE06)	07:08 19:28		07:37 18:40	07:12 17:02	
20	06:12 20:48	06:40 20:14	18:51 (SE07) 19:53 (SE06)	07:09 19:26		07:38 18:39	07:13 17:02	
21	06:13 20:47	06:41 20:13	18:50 (SE07) 19:51 (SE06)	07:10 19:24		07:39 18:38	07:14 17:03	
22	06:14 20:47	06:42 20:12	18:50 (SE07) 19:50 (SE06)	07:11 19:23	18:40 (SE05)	07:40 18:36	07:15 17:03	
23	06:15 20:46	06:43 20:10	18:49 (SE07) 19:49 (SE06)	07:12 19:21	18:47 (SE05)	07:41 18:35	07:16 17:04	
24	06:15 20:45	06:44 20:09	18:48 (SE07) 19:46 (SE06)	07:13 19:19	18:35 (SE05)	07:43 18:34	07:17 17:04	
25	06:16 20:44	06:45 20:07	18:48 (SE07) 19:45 (SE06)	07:13 19:18	18:34 (SE05)	06:44 17:32	07:18 17:05	
26	06:17 20:43	06:46 20:06	18:47 (SE07) 19:44 (SE06)	07:14 19:16	18:33 (SE05)	06:45 17:31	07:19 17:06	
27	06:18 20:43	06:47 20:04	18:47 (SE07) 19:42 (SE06)	07:15 19:15	18:32 (SE05)	06:46 17:30	07:20 17:06	
28	06:19 20:42	06:48 20:03	18:47 (SE07) 19:41 (SE06)	07:16 19:13	18:32 (SE05)	06:47 17:28	07:22 17:07	
29	06:20 20:41	06:48 20:01	18:47 (SE07) 19:34 (SE07)	07:17 19:11	18:32 (SE05)	06:48 17:27	07:23 17:08	
30	06:21 20:40	06:49 20:00	18:47 (SE07) 19:34 (SE07)	07:18 19:10	18:32 (SE05)	06:49 17:26	07:24 17:08	
31	06:21 20:39	06:50 19:58	18:47 (SE07) 19:33 (SE07)			06:50 17:25	07:44 17:09	
Potential sun hours	455	425	374	506	347	35	301	292
Total, worst case		1221						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F11 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March		April		May	June	
1	07:45	07:33	06:59		07:10		18:28 (SE07)	06:26	05:59
	17:10	17:43	18:15		19:47	43	19:11 (SE07)	20:17	20:45
2	07:45	07:32	06:57		07:08		18:28 (SE07)	06:25	05:58
	17:11	17:44	18:16		19:48	42	19:10 (SE07)	20:18	20:46
3	07:45	07:31	06:56		07:07		18:29 (SE07)	06:24	05:58
	17:12	17:45	18:17		19:49	41	19:10 (SE07)	20:19	20:46
4	07:45	07:30	06:54		07:05		18:29 (SE07)	06:22	05:58
	17:13	17:47	18:18		19:50	47	19:29 (SE06)	20:20	20:47
5	07:45	07:29	06:53		07:04		18:31 (SE07)	06:21	05:57
	17:13	17:48	18:20		19:51	47	19:30 (SE06)	20:21	20:48
6	07:45	07:28	06:51		07:02		18:31 (SE07)	06:20	05:57
	17:14	17:49	18:21		19:52	48	19:31 (SE06)	20:22	20:48
7	07:45	07:27	06:50		07:00		18:33 (SE07)	06:19	05:57
	17:15	17:50	18:22		19:53	47	19:32 (SE06)	20:23	20:49
8	07:45	07:26	06:48		06:59		18:34 (SE07)	06:18	05:57
	17:16	17:51	18:23		19:54	45	19:33 (SE06)	20:24	20:49
9	07:45	07:25	06:46		06:57		18:36 (SE07)	06:17	05:56
	17:17	17:52	18:24		19:55	42	19:33 (SE06)	20:25	20:50
10	07:45	07:23	06:45		06:56		18:39 (SE07)	06:16	05:56
	17:18	17:54	18:25		19:56	39	19:35 (SE06)	20:26	20:51
11	07:45	07:22	06:43		06:54		18:44 (SE07)	06:15	05:56
	17:19	17:55	18:26		19:57	28	19:35 (SE06)	20:27	20:51
12	07:44	07:21	06:42		06:53		19:13 (SE06)	06:14	05:56
	17:20	17:56	18:27		19:58	24	19:37 (SE06)	20:28	20:52
13	07:44	07:20	06:40		17:48 (SE07)	06:51	19:12 (SE06)	06:13	05:56
	17:21	17:57	18:28	16	18:04 (SE07)	19:59	19:37 (SE06)	20:29	20:52
14	07:44	07:19	06:39		17:44 (SE07)	06:50	19:13 (SE06)	06:12	05:56
	17:22	17:58	18:29	22	18:06 (SE07)	20:00	19:37 (SE06)	20:30	20:52
15	07:43	07:18	06:37		17:40 (SE07)	06:48	19:12 (SE06)	06:11	05:56
	17:23	17:59	18:30	28	18:08 (SE07)	20:01	19:36 (SE06)	20:31	20:53
16	07:43	07:16	06:35		17:39 (SE07)	06:47	19:13 (SE06)	06:10	05:56
	17:25	18:01	18:31	31	18:10 (SE07)	20:02	19:35 (SE06)	20:32	20:53
17	07:43	07:15	06:34		17:37 (SE07)	06:45	19:15 (SE06)	06:09	05:56
	17:26	18:02	18:32	34	18:11 (SE07)	20:03	19:34 (SE06)	20:32	20:54
18	07:42	07:14	06:32		17:36 (SE07)	06:44	19:15 (SE06)	06:08	05:56
	17:27	18:03	18:33	37	18:13 (SE07)	20:04	19:32 (SE06)	20:33	20:54
19	07:42	07:12	06:31		17:34 (SE07)	06:42	19:17 (SE06)	06:07	05:56
	17:28	18:04	18:34	39	18:13 (SE07)	20:05	19:30 (SE06)	20:34	20:54
20	07:41	07:11	06:29		17:32 (SE07)	06:41	19:20 (SE06)	06:06	05:56
	17:29	18:05	18:35	42	18:14 (SE07)	20:06	19:26 (SE06)	20:35	20:55
21	07:41	07:10	06:28		17:32 (SE07)	06:39		06:06	05:56
	17:30	18:06	18:36	43	18:15 (SE07)	20:07		20:36	20:55
22	07:40	07:08	06:26		17:31 (SE07)	06:38		06:05	05:57
	17:31	18:07	18:37	44	18:15 (SE07)	20:08		20:37	20:55
23	07:40	07:07	06:24		17:29 (SE07)	06:37		06:04	05:57
	17:32	18:09	18:38	45	18:14 (SE07)	20:09		20:38	20:55
24	07:39	07:06	06:23		17:29 (SE07)	06:35		06:03	05:57
	17:34	18:10	18:39	46	18:15 (SE07)	20:10		20:39	20:55
25	07:38	07:04	06:21		17:28 (SE07)	06:34		06:03	05:57
	17:35	18:11	18:40	47	18:15 (SE07)	20:11		20:39	20:55
26	07:37	07:03	06:19		17:29 (SE07)	06:33		06:02	05:58
	17:36	18:12	18:41	46	18:15 (SE07)	20:12		20:40	20:56
27	07:37	07:01	06:18		17:28 (SE07)	06:31		06:01	05:58
	17:37	18:13	18:42	46	18:14 (SE07)	20:13		20:41	20:56
28	07:36	07:00	06:16		17:27 (SE07)	06:30		06:01	05:58
	17:38	18:14	18:43	47	18:14 (SE07)	20:14		20:42	20:56
29	07:35		07:15		18:28 (SE07)	06:29		06:00	05:59
	17:39		19:44	46	19:14 (SE07)	20:15		20:43	20:56
30	07:34		07:13		18:28 (SE07)	06:27		06:00	05:59
	17:41		19:45	45	19:13 (SE07)	20:16		20:43	20:56
31	07:34		07:11		18:28 (SE07)			05:59	
	17:42		19:46	45	19:13 (SE07)			20:44	
Potential sun hours	301	299	370		397			445	448
Total, worst case				749		643			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F11 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December		
1	06:00 20:56	06:22 20:38	06:51 19:57	18:44 (SE07) 19:35 (SE06)	07:19 19:08	18:30 (SE07) 18:40 (SE07)	06:51 17:23	07:25 17:01
2	06:00 20:55	06:23 20:37	06:52 19:55	18:37 (SE07) 19:33 (SE06)	07:20 19:06		06:52 17:22	07:26 17:00
3	06:01 20:55	06:24 20:36	06:53 19:53	18:34 (SE07) 19:31 (SE06)	07:21 19:05		06:54 17:21	07:27 17:00
4	06:01 20:55	06:25 20:35	06:54 19:52	18:31 (SE07) 19:30 (SE06)	07:22 19:03		06:55 17:20	07:28 17:00
5	06:02 20:55	06:26 20:34	06:55 19:50	18:29 (SE07) 19:29 (SE06)	07:23 19:02		06:56 17:19	07:29 17:00
6	06:02 20:55	06:27 20:32	06:56 19:49	18:27 (SE07) 19:27 (SE06)	07:24 19:00		06:57 17:18	07:29 17:00
7	06:03 20:54	06:28 20:31	06:57 19:47	18:26 (SE07) 19:26 (SE06)	07:25 18:59		06:58 17:17	07:30 17:00
8	06:03 20:54	06:29 20:30	06:58 19:46	18:25 (SE07) 19:24 (SE06)	07:26 18:57		06:59 17:16	07:31 17:00
9	06:04 20:54	06:30 20:29	06:59 19:44	18:23 (SE07) 19:23 (SE06)	07:27 18:55		07:00 17:15	07:32 17:00
10	06:05 20:53	06:31 20:28	07:00 19:42	18:21 (SE07) 19:03 (SE07)	07:28 18:54		07:02 17:14	07:33 17:00
11	06:05 20:53	06:32 20:26	07:00 19:41	18:20 (SE07) 19:04 (SE07)	07:29 18:52		07:03 17:13	07:34 17:00
12	06:06 20:53	06:33 20:25	07:01 19:39	18:20 (SE07) 19:04 (SE07)	07:30 18:51		07:04 17:12	07:35 17:00
13	06:07 20:52	06:33 20:24	07:02 19:37	18:19 (SE07) 19:04 (SE07)	07:31 18:49		07:05 17:11	07:35 17:00
14	06:07 20:52	06:34 20:23	07:03 19:36	18:18 (SE07) 19:04 (SE07)	07:32 18:48		07:06 17:10	07:36 17:00
15	06:08 20:51	06:35 20:21	07:04 19:34	18:18 (SE07) 19:04 (SE07)	07:33 18:46		07:07 17:09	07:37 17:01
16	06:09 20:51	06:36 20:20	07:05 19:33	18:17 (SE07) 19:04 (SE07)	07:34 18:45		07:08 17:09	07:38 17:01
17	06:10 20:50	06:37 20:19	07:06 19:31	18:17 (SE07) 19:03 (SE07)	07:35 18:43		07:09 17:08	07:38 17:01
18	06:10 20:49	06:38 20:17	07:07 19:29	18:17 (SE07) 19:03 (SE07)	07:36 18:42		07:11 17:07	07:39 17:02
19	06:11 20:49	06:39 20:16	07:08 19:28	18:17 (SE07) 19:02 (SE07)	07:37 18:40		07:12 17:06	07:39 17:02
20	06:12 20:48	06:40 20:14	07:09 19:26	18:16 (SE07) 19:01 (SE07)	07:38 18:39		07:13 17:06	07:40 17:02
21	06:13 20:47	06:41 20:13	07:10 19:24	18:16 (SE07) 19:00 (SE07)	07:39 18:38		07:14 17:05	07:41 17:03
22	06:14 20:47	06:42 20:12	07:11 19:23	18:16 (SE07) 18:59 (SE07)	07:40 18:36		07:15 17:05	07:41 17:03
23	06:15 20:46	06:43 20:10	19:24 (SE06) 19:32 (SE06)	07:12 19:21	18:16 (SE07) 18:58 (SE07)		07:16 17:04	07:42 17:04
24	06:15 20:45	06:44 20:09	19:20 (SE06) 19:33 (SE06)	07:13 19:19	18:17 (SE07) 18:57 (SE07)		07:17 17:03	07:42 17:04
25	06:16 20:44	06:45 20:07	19:18 (SE06) 19:35 (SE06)	07:13 19:18	18:18 (SE07) 18:56 (SE07)		06:44 17:03	07:43 17:05
26	06:17 20:43	06:46 20:06	19:16 (SE06) 19:36 (SE06)	07:14 19:16	18:19 (SE07) 18:54 (SE07)		06:45 17:31	07:43 17:06
27	06:18 20:43	06:47 20:04	19:15 (SE06) 19:37 (SE06)	07:15 19:15	18:20 (SE07) 18:52 (SE07)		06:46 17:30	07:43 17:06
28	06:19 20:42	06:48 20:03	19:14 (SE06) 19:38 (SE06)	07:16 19:13	18:21 (SE07) 18:50 (SE07)		06:47 17:28	07:44 17:07
29	06:20 20:41	06:48 20:01	19:13 (SE06) 19:38 (SE06)	07:17 19:11	18:23 (SE07) 18:48 (SE07)		06:48 17:27	07:44 17:08
30	06:21 20:40	06:49 20:00	19:13 (SE06) 19:38 (SE06)	07:18 19:10	18:26 (SE07) 18:45 (SE07)		06:49 17:26	07:44 17:08
31	06:21 20:39	06:50 19:58	19:13 (SE06) 19:37 (SE06)		06:50 17:25			07:44 17:09
Potential sun hours	455	425	374	1230	347	10	301	292
Total, worst case		178						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F12 - C2
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:45	07:33	06:59	17:35 (SE07)	18:14 (SE07)	06:26
	17:10	17:43	18:15	19:47	19:26 (SE06)	20:17
2	07:45	07:32	06:57	17:29 (SE07)	18:15 (SE07)	06:25
	17:11	17:44	18:16	19:48	19:27 (SE06)	20:18
3	07:45	07:31	06:56	17:25 (SE07)	18:18 (SE07)	06:24
	17:12	17:45	18:17	19:49	19:28 (SE06)	20:19
4	07:45	07:30	06:54	17:23 (SE07)	18:21 (SE07)	06:22
	17:13	17:47	18:18	19:50	19:29 (SE06)	20:20
5	07:45	07:29	06:53	17:20 (SE07)	18:26 (SE07)	06:21
	17:13	17:48	18:20	19:51	19:30 (SE06)	20:21
6	07:45	07:28	06:51	17:19 (SE07)	19:08 (SE06)	06:20
	17:14	17:49	18:21	19:52	19:31 (SE06)	20:22
7	07:45	07:27	06:50	17:17 (SE07)	19:08 (SE06)	06:19
	17:15	17:50	18:22	19:53	19:32 (SE06)	20:23
8	07:45	07:26	06:48	17:15 (SE07)	19:07 (SE06)	06:18
	17:16	17:51	18:23	19:54	19:33 (SE06)	20:24
9	07:45	07:25	06:46	17:14 (SE07)	19:06 (SE06)	06:17
	17:17	17:52	18:24	19:55	19:33 (SE06)	20:25
10	07:45	07:24	06:45	17:13 (SE07)	19:06 (SE06)	06:16
	17:18	17:54	18:25	19:56	19:34 (SE06)	20:26
11	07:45	07:22	06:43	17:12 (SE07)	19:06 (SE06)	06:15
	17:19	17:55	18:26	19:57	19:33 (SE06)	20:27
12	07:44	07:21	06:42	17:11 (SE07)	19:07 (SE06)	06:14
	17:20	17:56	18:27	19:58	19:33 (SE06)	20:28
13	07:44	07:20	06:40	17:11 (SE07)	19:06 (SE06)	06:13
	17:21	17:57	18:28	19:59	19:32 (SE06)	20:29
14	07:44	07:19	06:39	17:09 (SE07)	19:08 (SE06)	06:12
	17:22	17:58	18:29	20:00	19:31 (SE06)	20:30
15	07:43	07:18	06:37	17:08 (SE07)	19:08 (SE06)	06:11
	17:23	17:59	18:30	20:01	19:29 (SE06)	20:31
16	07:43	07:16	06:36	17:09 (SE07)	19:10 (SE06)	06:10
	17:25	18:01	18:31	20:02	19:28 (SE06)	20:32
17	07:43	07:15	06:34	17:08 (SE07)	19:12 (SE06)	06:09
	17:26	18:02	18:32	20:03	19:26 (SE06)	20:32
18	07:42	07:14	06:32	17:08 (SE07)	19:14 (SE06)	06:08
	17:27	18:03	18:33	20:04	19:22 (SE06)	20:33
19	07:42	07:12	06:31	17:07 (SE07)		06:07
	17:28	18:04	18:34	20:05		20:34
20	07:41	07:11	06:29	17:07 (SE07)		06:06
	17:29	18:05	18:35	20:06		20:35
21	07:41	07:10	06:28	17:07 (SE07)		06:06
	17:30	18:06	18:36	20:07		20:36
22	07:40	07:08	06:26	17:07 (SE07)		06:05
	17:31	18:07	18:37	20:08		20:37
23	07:40	07:07	06:24	17:07 (SE07)		06:04
	17:32	18:09	18:38	20:09		20:38
24	07:39	07:06	06:23	17:08 (SE07)		06:03
	17:34	18:10	18:39	20:10		20:39
25	07:38	07:04	17:44 (SE05)	17:08 (SE07)		06:03
	17:35	18:11	18:40	20:11		20:39
26	07:37	07:03	17:42 (SE05)	17:09 (SE07)		06:02
	17:36	18:12	18:41	20:12		20:40
27	07:37	07:01	17:39 (SE05)	17:09 (SE07)		06:01
	17:37	18:13	18:42	20:13		20:41
28	07:36	07:00	17:39 (SE05)	17:09 (SE07)		06:01
	17:38	18:14	18:43	20:14		20:42
29	07:35		17:15 (SE07)	18:11 (SE07)		06:00
	17:39		19:44	20:15		20:43
30	07:34		07:13 (SE07)	18:11 (SE07)		06:00
	17:41		19:45	20:16		20:43
31	07:34		07:11 (SE07)	18:13 (SE07)		05:59
	17:42		19:46	19:26 (SE06)		20:44
Potential sun hours	301	299	370	397	445	448
Total, worst case		42	1586	507		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F12 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December		
1	06:00	06:22	06:51	19:06 (SE06)	07:19	17:50 (SE07)	06:51	07:25
	20:56	20:38	19:57	27 19:33 (SE06)	19:08	52 18:42 (SE07)	17:23	17:01
2	06:00	06:23	06:52	19:04 (SE06)	07:20	17:50 (SE07)	06:52	07:26
	20:55	20:37	19:55	28 19:32 (SE06)	19:06	51 18:41 (SE07)	17:22	17:00
3	06:01	06:24	06:53	19:04 (SE06)	07:21	17:51 (SE07)	06:54	07:27
	20:55	20:36	19:53	27 19:31 (SE06)	19:05	49 18:40 (SE07)	17:21	17:00
4	06:01	06:25	06:54	19:04 (SE06)	07:22	17:51 (SE07)	06:55	07:28
	20:55	20:35	19:52	26 19:30 (SE06)	19:03	48 18:39 (SE07)	17:20	17:00
5	06:02	06:26	06:55	19:04 (SE06)	07:23	17:52 (SE07)	06:56	07:29
	20:55	20:34	19:50	25 19:29 (SE06)	19:02	46 18:38 (SE07)	17:19	17:00
6	06:02	06:27	06:56	19:04 (SE06)	07:24	17:53 (SE07)	06:57	07:29
	20:55	20:32	19:49	23 19:27 (SE06)	19:00	43 18:36 (SE07)	17:18	17:00
7	06:03	06:28	06:57	18:22 (SE07)	07:25	17:54 (SE07)	06:58	07:30
	20:54	20:31	19:47	30 19:26 (SE06)	18:59	41 18:35 (SE07)	17:17	17:00
8	06:03	06:29	06:58	18:16 (SE07)	07:26	17:55 (SE07)	06:59	07:31
	20:54	20:30	19:46	38 19:24 (SE06)	18:57	38 18:33 (SE07)	17:16	17:00
9	06:04	06:30	06:59	18:12 (SE07)	07:27	17:57 (SE07)	07:00	07:32
	20:54	20:29	19:44	44 19:23 (SE06)	18:55	35 18:32 (SE05)	17:15	17:00
10	06:05	06:31	07:00	18:09 (SE07)	07:28	17:59 (SE07)	07:02	07:33
	20:53	20:28	19:42	48 19:20 (SE06)	18:54	33 18:32 (SE05)	17:14	17:00
11	06:05	06:32	07:00	18:06 (SE07)	07:29	18:01 (SE07)	07:03	07:34
	20:53	20:26	19:41	55 19:19 (SE06)	18:52	29 18:30 (SE05)	17:13	17:00
12	06:06	06:33	07:01	18:04 (SE07)	07:30	18:05 (SE07)	07:04	07:35
	20:53	20:25	19:39	58 19:17 (SE06)	18:51	24 18:29 (SE05)	17:12	17:00
13	06:07	06:33	07:02	18:03 (SE07)	07:31	18:11 (SE05)	07:05	07:35
	20:52	20:24	19:37	57 19:13 (SE04)	18:49	16 18:27 (SE05)	17:11	17:00
14	06:07	06:34	07:03	18:01 (SE07)	07:32	18:12 (SE05)	07:06	07:36
	20:52	20:23	19:36	62 19:14 (SE04)	18:48	13 18:25 (SE05)	17:10	17:00
15	06:08	06:35	07:04	18:00 (SE07)	07:33	18:12 (SE05)	07:07	07:37
	20:51	20:21	19:34	63 19:12 (SE04)	18:46	12 18:24 (SE05)	17:09	17:01
16	06:09	06:36	07:05	17:58 (SE07)	07:34	18:14 (SE05)	07:08	07:38
	20:51	20:20	19:33	65 19:11 (SE04)	18:45	8 18:22 (SE05)	17:09	17:01
17	06:10	06:37	07:06	17:57 (SE07)	07:35	18:17 (SE05)	07:09	07:38
	20:50	20:19	19:31	65 19:09 (SE04)	18:43	4 18:21 (SE05)	17:08	17:01
18	06:10	06:38	07:07	17:56 (SE07)	07:36		07:11	07:39
	20:49	20:17	19:29	66 19:08 (SE04)	18:42		17:07	17:02
19	06:11	06:39	07:08	17:55 (SE07)	07:37		07:12	07:39
	20:49	20:16	19:28	64 19:06 (SE04)	18:40		17:06	17:02
20	06:12	06:40	07:09	17:53 (SE07)	07:38		07:13	07:40
	20:48	20:14	19:26	64 19:04 (SE04)	18:39		17:06	17:02
21	06:13	06:41	07:10	17:53 (SE07)	07:39		07:14	07:41
	20:47	20:13	19:24	60 19:02 (SE04)	18:38		17:05	17:03
22	06:14	06:42	07:11	17:52 (SE07)	07:40		07:15	07:41
	20:47	20:12	19:23	58 19:01 (SE04)	18:36		17:05	17:03
23	06:15	06:43	07:12	17:51 (SE07)	07:41		07:16	07:42
	20:46	20:10	19:21	55 18:46 (SE07)	18:35		17:04	17:04
24	06:15	06:44	07:13	17:51 (SE07)	07:43		07:17	07:42
	20:45	20:09	19:19	55 18:46 (SE07)	18:34		17:03	17:04
25	06:16	06:45	19:17 (SE06)	07:13	17:50 (SE07)	06:44	07:18	07:43
	20:44	20:07	8 19:25 (SE06)	19:18	56 18:46 (SE07)	17:32	17:03	17:05
26	06:17	06:46	19:13 (SE06)	07:14	56 17:50 (SE07)	06:45	07:19	07:43
	20:43	20:06	15 19:28 (SE06)	19:16	55 18:45 (SE07)	17:31	17:02	17:06
27	06:18	06:47	19:11 (SE06)	07:15	55 17:50 (SE07)	06:46	07:20	07:43
	20:43	20:04	19 19:30 (SE06)	19:15	55 18:45 (SE07)	17:30	17:02	17:06
28	06:19	06:48	19:10 (SE06)	07:16	54 17:50 (SE07)	06:47	07:22	07:44
	20:42	20:03	21 19:31 (SE06)	19:13	54 18:44 (SE07)	17:28	17:02	17:07
29	06:20	06:48	19:08 (SE06)	07:17	54 17:50 (SE07)	06:48	07:23	07:44
	20:41	20:01	24 19:32 (SE06)	19:11	54 18:44 (SE07)	17:27	17:01	17:08
30	06:21	06:49	19:07 (SE06)	07:18	53 17:50 (SE07)	06:49	07:24	07:44
	20:40	20:00	25 19:32 (SE06)	19:10	53 18:43 (SE07)	17:26	17:01	17:08
31	06:21	06:50	19:07 (SE06)			06:50		07:44
	20:39	19:58	26 19:33 (SE06)			17:25		17:09
Potential sun hours	455	425	374	1490	347	542	301	292
Total, worst case								

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F12 - FABB RURALE

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June		
1	07:45	07:33	06:59	17:24 (SE07)	07:10	18:06 (SE07)	06:26	05:59
	17:10	17:43	18:15	30 17:54 (SE05)	19:47	65 19:26 (SE06)	20:17	20:45
2	07:45	07:32	06:57	17:21 (SE07)	07:08	18:07 (SE07)	06:25	05:58
	17:11	17:44	18:16	35 17:56 (SE05)	19:48	61 19:27 (SE06)	20:18	20:46
3	07:45	07:31	06:56	17:18 (SE07)	07:07	18:09 (SE07)	06:24	05:58
	17:12	17:45	18:17	38 17:56 (SE05)	19:49	55 19:28 (SE06)	20:19	20:46
4	07:45	07:30	06:54	17:16 (SE07)	07:05	18:11 (SE07)	06:22	05:58
	17:13	17:47	18:18	40 17:56 (SE05)	19:50	50 19:29 (SE06)	20:20	20:47
5	07:45	07:29	06:53	17:14 (SE07)	07:04	18:13 (SE07)	06:21	05:57
	17:13	17:48	18:20	41 17:55 (SE07)	19:51	48 19:30 (SE06)	20:21	20:48
6	07:45	07:28	06:51	17:12 (SE07)	07:02	18:16 (SE07)	06:20	05:57
	17:14	17:49	18:21	45 17:57 (SE07)	19:52	44 19:31 (SE06)	20:22	20:48
7	07:45	07:27	06:50	17:10 (SE07)	07:00	18:21 (SE07)	06:19	05:57
	17:15	17:50	18:22	48 17:58 (SE07)	19:53	36 19:32 (SE06)	20:23	20:49
8	07:45	07:26	06:48	17:09 (SE07)	06:59	19:07 (SE06)	06:18	05:57
	17:16	17:51	18:23	49 17:58 (SE07)	19:54	26 19:33 (SE06)	20:24	20:49
9	07:45	07:25	06:46	17:08 (SE07)	06:57	19:06 (SE06)	06:17	05:56
	17:17	17:52	18:24	52 18:00 (SE07)	19:55	27 19:33 (SE06)	20:25	20:50
10	07:45	07:24	06:45	17:06 (SE07)	06:56	19:06 (SE06)	06:16	05:56
	17:18	17:54	18:25	54 18:00 (SE07)	19:56	29 19:35 (SE06)	20:26	20:51
11	07:45	07:22	06:43	17:06 (SE07)	06:54	19:05 (SE06)	06:15	05:56
	17:19	17:55	18:26	55 18:01 (SE07)	19:57	30 19:35 (SE06)	20:27	20:51
12	07:44	07:21	06:42	17:05 (SE07)	06:53	19:06 (SE06)	06:14	05:56
	17:20	17:56	18:27	56 18:01 (SE07)	19:58	29 19:35 (SE06)	20:28	20:52
13	07:44	07:20	06:40	17:04 (SE07)	06:51	19:06 (SE06)	06:13	05:56
	17:21	17:57	18:28	58 18:02 (SE07)	19:59	27 19:33 (SE06)	20:29	20:52
14	07:44	07:19	06:39	17:03 (SE07)	06:50	19:06 (SE06)	06:12	05:56
	17:22	17:58	18:29	59 18:02 (SE07)	20:00	27 19:33 (SE06)	20:30	20:53
15	07:43	07:18	06:37	17:02 (SE07)	06:48	19:06 (SE06)	06:11	05:56
	17:23	17:59	18:30	60 18:02 (SE07)	20:01	26 19:32 (SE06)	20:31	20:53
16	07:43	07:16	06:36	17:02 (SE07)	06:47	19:08 (SE06)	06:10	05:56
	17:25	18:01	18:31	60 18:02 (SE07)	20:02	23 19:31 (SE06)	20:32	20:53
17	07:43	07:15	06:34	17:02 (SE07)	06:45	19:09 (SE06)	06:09	05:56
	17:26	18:02	18:32	60 18:02 (SE07)	20:03	21 19:30 (SE06)	20:32	20:54
18	07:42	07:14	06:32	17:02 (SE07)	06:44	19:10 (SE06)	06:08	05:56
	17:27	18:03	18:33	60 18:02 (SE07)	20:04	17 19:27 (SE06)	20:33	20:54
19	07:42	07:12	06:31	17:01 (SE07)	06:42	19:12 (SE06)	06:07	05:56
	17:28	18:04	18:34	60 18:01 (SE07)	20:05	13 19:25 (SE06)	20:34	20:54
20	07:41	07:11	06:29	17:01 (SE07)	06:41	19:16 (SE06)	06:06	05:56
	17:29	18:05	18:35	60 18:01 (SE07)	20:06	4 19:20 (SE06)	20:35	20:55
21	07:41	07:10	06:28	17:01 (SE07)	06:39		06:06	05:56
	17:30	18:06	18:36	60 18:01 (SE07)	20:07		20:36	20:55
22	07:40	07:08	06:26	17:01 (SE07)	06:38		06:05	05:57
	17:31	18:07	18:37	65 18:16 (SE04)	20:08		20:37	20:55
23	07:40	07:07	06:24	17:01 (SE07)	06:37		06:04	05:57
	17:32	18:09	18:38	67 18:17 (SE04)	20:09		20:38	20:55
24	07:39	07:06	17:45 (SE05)	06:23	17:01 (SE07)	06:35	06:03	05:57
	17:34	18:10	3 17:48 (SE05)	18:39	70 18:19 (SE04)	20:10	20:39	20:55
25	07:38	07:04	17:41 (SE05)	06:21	17:01 (SE07)	06:34	06:03	05:57
	17:35	18:11	9 17:50 (SE05)	18:40	71 18:19 (SE04)	20:11	20:39	20:55
26	07:37	07:03	17:40 (SE05)	06:19	17:02 (SE07)	06:33	06:02	05:58
	17:36	18:12	11 17:51 (SE05)	18:41	72 18:21 (SE04)	20:12	20:40	20:56
27	07:37	07:01	17:38 (SE05)	06:18	17:02 (SE07)	06:31	06:01	05:58
	17:37	18:13	14 17:52 (SE05)	18:42	71 18:21 (SE04)	20:13	20:41	20:56
28	07:36	07:00	17:30 (SE07)	06:16	17:02 (SE07)	06:30	06:01	05:58
	17:38	18:14	23 17:53 (SE05)	18:43	72 18:22 (SE04)	20:14	20:42	20:56
29	07:35			07:15	18:04 (SE07)	06:29	06:00	05:59
	17:39			19:44	70 19:24 (SE04)	20:15	20:43	20:56
30	07:34			07:13	18:04 (SE07)	06:27	06:00	05:59
	17:41			19:45	67 19:23 (SE04)	20:16	20:43	20:56
31	07:34			07:11	18:06 (SE07)		05:59	
	17:42			19:46	63 19:22 (SE04)		20:44	
Potential sun hours	301	299		370	397	658	445	448
Total, worst case		60		1768				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F12 - FABB RURALE

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08	17:44 (SE07) 18:41 (SE07)	06:51 17:23
2	06:00 20:55	06:23 20:37	06:52 19:55	07:20 19:06	17:44 (SE07) 18:40 (SE07)	06:52 17:22
3	06:01 20:55	06:24 20:36	06:53 19:53	07:21 19:05	17:45 (SE07) 18:39 (SE07)	06:54 17:21
4	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	17:45 (SE07) 18:38 (SE07)	06:55 17:20
5	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	17:46 (SE07) 18:37 (SE07)	06:56 17:19
6	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	17:47 (SE07) 18:35 (SE07)	06:57 17:18
7	06:03 20:54	06:28 20:31	06:57 19:47	07:25 18:59	17:47 (SE07) 18:34 (SE07)	06:58 17:17
8	06:03 20:54	06:29 20:30	06:58 19:46	07:26 19:24 (SE06)	17:49 (SE07) 18:32 (SE07)	06:59 17:16
9	06:04 20:54	06:30 20:29	06:59 19:44	07:27 19:23 (SE06)	17:50 (SE07) 18:31 (SE05)	07:00 17:15
10	06:05 20:53	06:31 20:28	07:00 19:42	07:28 19:20 (SE06)	17:51 (SE07) 18:31 (SE05)	07:02 17:14
11	06:05 20:53	06:32 20:26	07:00 19:41	07:29 19:19 (SE06)	17:53 (SE07) 18:30 (SE05)	07:03 17:13
12	06:06 20:53	06:33 20:25	07:01 19:39	07:30 19:13 (SE04)	17:56 (SE07) 18:29 (SE05)	07:04 17:12
13	06:07 20:52	06:33 20:24	07:02 19:37	07:31 19:14 (SE04)	17:59 (SE07) 18:27 (SE05)	07:05 17:11
14	06:07 20:52	06:34 20:23	07:03 19:36	07:32 19:14 (SE04)	18:07 (SE07) 18:25 (SE05)	07:06 17:10
15	06:08 20:51	06:35 20:21	07:04 19:34	07:33 19:12 (SE04)	18:11 (SE05) 18:24 (SE05)	07:07 17:09
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 19:11 (SE04)	18:12 (SE05) 18:22 (SE05)	07:08 17:09
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 19:09 (SE04)	18:14 (SE05) 18:21 (SE05)	07:09 17:08
18	06:10 20:49	06:38 20:17	07:07 19:29	07:36 19:08 (SE04)	17:08 18:42	17:08 17:02
19	06:11 20:49	06:39 20:16	07:08 19:28	07:37 19:06 (SE04)	17:12 18:41	17:07 17:06
20	06:12 20:48	06:40 20:14	07:09 19:26	07:38 19:04 (SE04)	17:13 18:39	17:06 17:06
21	06:13 20:47	06:41 20:13	07:10 19:24	07:39 19:02 (SE04)	17:14 18:38	17:06 17:03
22	06:14 20:47	06:42 20:12	07:11 19:23	07:40 19:01 (SE04)	17:15 18:36	17:05 17:03
23	06:15 20:46	06:43 20:10	07:12 19:21	07:41 18:45 (SE07)	17:16 18:35	17:05 17:04
24	06:15 20:45	06:44 20:09	07:13 19:19	07:43 18:45 (SE07)	17:17 18:34	17:04 17:04
25	06:16 20:44	06:45 20:07	07:13 19:18	07:44 18:45 (SE07)	17:18 18:32	17:04 17:03
26	06:17 20:43	06:46 20:06	07:14 19:16	07:45 18:44 (SE07)	17:19 17:31	17:03 17:02
27	06:18 20:43	06:47 20:04	07:15 19:15	07:46 18:44 (SE07)	17:20 17:30	17:02 17:06
28	06:19 20:42	06:48 20:03	07:16 19:13	07:47 18:43 (SE07)	17:22 17:28	17:02 17:07
29	06:20 20:41	06:48 20:01	07:17 19:11	07:48 18:42 (SE07)	17:23 17:27	17:02 17:08
30	06:21 20:40	06:49 20:00	07:18 19:10	07:49 18:42 (SE07)	17:24 17:26	17:03 17:08
31	06:21 20:39	06:50 19:58	07:19 19:06 (SE06)	07:50 17:25	17:25	17:04 17:09
Potential sun hours	455	425	374	347	301	292
Total, worst case		192	1689	636		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F12 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June		
1	07:45	07:33	06:59	17:18 (SE07)	07:10	17:58 (SE07)	06:26	05:59
	17:10	17:43	18:15	36 17:54 (SE05)	19:47	71 19:22 (SE04)	20:17	20:45
2	07:45	07:32	06:57	17:15 (SE07)	07:08	17:59 (SE07)	06:25	05:58
	17:11	17:44	18:16	41 17:56 (SE05)	19:48	73 19:27 (SE06)	20:18	20:46
3	07:45	07:31	06:56	17:12 (SE07)	07:07	18:00 (SE07)	06:24	05:58
	17:12	17:45	18:17	44 17:56 (SE05)	19:49	70 19:28 (SE06)	20:19	20:46
4	07:45	07:30	06:54	17:11 (SE07)	07:05	18:01 (SE07)	06:22	05:58
	17:13	17:47	18:18	45 17:56 (SE05)	19:50	64 19:29 (SE06)	20:20	20:47
5	07:45	07:29	06:53	17:08 (SE07)	07:04	18:03 (SE07)	06:21	05:57
	17:13	17:48	18:20	47 17:55 (SE05)	19:51	60 19:30 (SE06)	20:21	20:48
6	07:45	07:28	06:51	17:07 (SE07)	07:02	18:04 (SE07)	06:20	05:57
	17:14	17:49	18:21	49 17:56 (SE07)	19:52	60 19:31 (SE06)	20:22	20:48
7	07:45	07:27	06:50	17:05 (SE07)	07:00	18:07 (SE07)	06:19	05:57
	17:15	17:50	18:22	52 17:57 (SE07)	19:53	57 19:32 (SE06)	20:23	20:49
8	07:45	07:26	06:48	17:03 (SE07)	06:59	18:08 (SE07)	06:18	05:57
	17:16	17:51	18:23	54 17:57 (SE07)	19:54	55 19:33 (SE06)	20:24	20:49
9	07:45	07:25	06:46	17:02 (SE07)	06:57	18:11 (SE07)	06:17	05:56
	17:17	17:52	18:24	57 17:59 (SE07)	19:55	49 19:33 (SE06)	20:25	20:50
10	07:45	07:24	06:45	17:01 (SE07)	06:56	18:16 (SE07)	06:16	05:56
	17:18	17:54	18:25	58 17:59 (SE07)	19:56	42 19:35 (SE06)	20:26	20:51
11	07:45	07:22	06:43	17:00 (SE07)	06:54	19:06 (SE06)	06:15	05:56
	17:19	17:55	18:26	60 18:00 (SE07)	19:57	29 19:35 (SE06)	20:27	20:51
12	07:44	07:21	06:42	16:59 (SE07)	06:53	19:06 (SE06)	06:14	05:56
	17:20	17:56	18:27	61 18:00 (SE07)	19:58	31 19:37 (SE06)	20:28	20:52
13	07:44	07:20	06:40	16:59 (SE07)	06:51	19:05 (SE06)	06:13	05:56
	17:21	17:57	18:28	62 18:01 (SE07)	19:59	31 19:36 (SE06)	20:29	20:52
14	07:44	07:19	06:39	16:58 (SE07)	06:50	19:06 (SE06)	06:12	05:56
	17:22	17:58	18:29	63 18:01 (SE07)	20:00	30 19:36 (SE06)	20:30	20:53
15	07:43	07:18	06:37	16:57 (SE07)	06:48	19:06 (SE06)	06:11	05:56
	17:23	17:59	18:30	64 18:01 (SE07)	20:01	28 19:34 (SE06)	20:31	20:53
16	07:43	07:16	06:36	16:57 (SE07)	06:47	19:06 (SE06)	06:10	05:56
	17:25	18:01	18:31	64 18:01 (SE07)	20:02	28 19:34 (SE06)	20:32	20:53
17	07:43	07:15	06:34	16:56 (SE07)	06:45	19:07 (SE06)	06:09	05:56
	17:26	18:02	18:32	65 18:01 (SE07)	20:03	26 19:33 (SE06)	20:32	20:54
18	07:42	07:14	06:32	16:56 (SE07)	06:44	19:08 (SE06)	06:08	05:56
	17:27	18:03	18:33	66 18:02 (SE07)	20:04	24 19:32 (SE06)	20:33	20:54
19	07:42	07:12	06:31	16:55 (SE07)	06:42	19:09 (SE06)	06:07	05:56
	17:28	18:04	18:34	66 18:01 (SE07)	20:05	22 19:31 (SE06)	20:34	20:54
20	07:41	07:11	06:29	16:55 (SE07)	06:41	19:10 (SE06)	06:06	05:56
	17:29	18:05	18:35	65 18:00 (SE07)	20:06	18 19:28 (SE06)	20:35	20:55
21	07:41	07:10	06:28	16:55 (SE07)	06:39	19:12 (SE06)	06:06	05:56
	17:30	18:06	18:36	66 18:01 (SE07)	20:07	14 19:26 (SE06)	20:36	20:55
22	07:40	07:08	06:26	16:55 (SE07)	06:38	19:16 (SE06)	06:05	05:57
	17:31	18:07	18:37	69 18:16 (SE04)	20:08	7 19:23 (SE06)	20:37	20:55
23	07:40	07:07	06:24	16:54 (SE07)	06:37		06:04	05:57
	17:32	18:09	18:38	73 18:17 (SE04)	20:09		20:38	20:55
24	07:39	07:06	17:42 (SE05)	06:23	16:55 (SE07)	06:35	06:03	05:57
	17:34	18:10	6 17:48 (SE05)	18:39	75 18:19 (SE04)	20:10	20:39	20:55
25	07:38	07:04	17:40 (SE05)	06:21	16:55 (SE07)	06:34	06:03	05:57
	17:35	18:11	10 17:50 (SE05)	18:40	76 18:19 (SE04)	20:11	20:39	20:55
26	07:38	07:03	17:38 (SE05)	06:19	16:55 (SE07)	06:33	06:02	05:58
	17:36	18:12	13 17:51 (SE05)	18:41	79 18:21 (SE04)	20:12	20:40	20:56
27	07:37	07:01	17:29 (SE07)	06:18	16:55 (SE07)	06:31	06:01	05:58
	17:37	18:13	23 17:52 (SE05)	18:42	79 18:21 (SE04)	20:13	20:41	20:56
28	07:36	07:00	17:22 (SE07)	06:16	16:55 (SE07)	06:30	06:01	05:58
	17:38	18:14	31 17:53 (SE05)	18:43	80 18:22 (SE04)	20:14	20:42	20:56
29	07:35			07:15	17:56 (SE07)	06:29	06:00	05:59
	17:39			19:44	79 19:24 (SE04)	20:15	20:43	20:56
30	07:34			07:13	17:57 (SE07)	06:27	06:00	05:59
	17:41			19:45	78 19:24 (SE04)	20:16	20:43	20:56
31	07:34			07:11	17:58 (SE07)		05:59	
	17:42			19:46	75 19:24 (SE04)		20:44	
Potential sun hours	301	299		370	397		445	448
Total, worst case		83		1948		889		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F12 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	06:00 20:56	06:22 20:38	06:51 19:57	19:06 (SE06) 19:35 (SE06)	07:19 19:08	17:38 (SE07) 17:23	06:51 07:25
2	06:00 20:55	06:23 20:37	06:52 19:55	18:14 (SE07) 19:33 (SE06)	07:20 19:06	17:39 (SE07) 18:39 (SE07)	06:52 17:22
3	06:01 20:55	06:24 20:36	06:53 19:53	18:09 (SE07) 19:31 (SE06)	07:21 19:05	17:39 (SE07) 18:38 (SE07)	06:54 17:21
4	06:01 20:55	06:25 20:35	06:54 19:52	18:06 (SE07) 19:30 (SE06)	07:22 19:03	17:40 (SE07) 18:37 (SE07)	06:55 17:20
5	06:02 20:55	06:26 20:34	06:55 19:50	18:03 (SE07) 19:29 (SE06)	07:23 19:02	17:40 (SE07) 18:36 (SE07)	06:56 17:19
6	06:02 20:55	06:27 20:32	06:56 19:49	18:00 (SE07) 19:27 (SE06)	07:24 19:00	17:41 (SE07) 18:34 (SE07)	06:57 17:18
7	06:03 20:54	06:28 20:31	06:57 19:47	17:58 (SE07) 19:26 (SE06)	07:25 18:59	17:42 (SE07) 18:33 (SE07)	06:58 17:17
8	06:03 20:54	06:29 20:30	06:58 19:46	17:56 (SE07) 19:24 (SE06)	07:26 18:57	17:43 (SE07) 18:31 (SE07)	06:59 17:16
9	06:04 20:54	06:30 20:29	06:59 19:44	17:55 (SE07) 19:23 (SE06)	07:27 18:55	17:44 (SE07) 18:30 (SE05)	07:00 17:15
10	06:05 20:53	06:31 20:28	07:00 19:42	17:52 (SE07) 19:20 (SE06)	07:28 18:54	17:46 (SE07) 18:30 (SE05)	07:02 17:14
11	06:05 20:53	06:32 20:26	07:00 19:41	17:51 (SE07) 19:14 (SE04)	07:29 18:52	17:48 (SE07) 18:30 (SE05)	07:03 17:13
12	06:06 20:53	06:33 20:25	07:01 19:39	17:49 (SE07) 19:15 (SE04)	07:30 18:51	17:50 (SE07) 18:29 (SE05)	07:04 17:12
13	06:07 20:52	06:33 20:24	07:02 19:37	17:48 (SE07) 19:15 (SE04)	07:31 18:49	17:53 (SE07) 18:27 (SE05)	07:05 17:11
14	06:07 20:52	06:34 20:23	07:03 19:36	17:47 (SE07) 19:14 (SE04)	07:32 18:48	17:57 (SE07) 18:25 (SE05)	07:06 17:10
15	06:08 20:51	06:35 20:21	07:04 19:34	17:46 (SE07) 19:12 (SE04)	07:33 18:46	18:09 (SE05) 18:24 (SE05)	07:07 17:09
16	06:09 20:51	06:36 20:20	07:05 19:33	17:45 (SE07) 19:11 (SE04)	07:34 18:45	18:10 (SE05) 18:22 (SE05)	07:08 17:09
17	06:10 20:50	06:37 20:19	07:06 19:31	17:44 (SE07) 19:09 (SE04)	07:35 18:43	18:12 (SE05) 18:21 (SE05)	07:09 17:08
18	06:10 20:49	06:38 20:17	07:07 19:29	17:43 (SE07) 19:08 (SE04)	07:36 18:42	18:16 (SE05) 18:18 (SE05)	07:11 17:07
19	06:11 20:49	06:39 20:16	07:08 19:28	17:42 (SE07) 19:06 (SE04)	07:37 18:41	18:21 (SE05) 18:16 (SE05)	17:08 17:06
20	06:12 20:48	06:40 20:14	07:09 19:26	17:41 (SE07) 19:04 (SE04)	07:38 18:39	18:12 (SE05) 18:11 (SE05)	17:07 17:06
21	06:13 20:47	06:41 20:13	19:20 (SE06) 07:10	17:40 (SE07) 19:02 (SE04)	07:39 18:38	18:10 (SE05) 18:09 (SE05)	17:06 17:05
22	06:14 20:47	06:42 20:12	19:16 (SE06) 07:11	17:40 (SE07) 19:01 (SE04)	07:40 18:37	18:08 (SE05) 18:07 (SE05)	17:05 17:04
23	06:15 20:46	06:43 20:10	19:31 (SE06) 07:12	18:45 (SE07) 17:39 (SE07)	18:36 07:41	18:06 (SE05) 18:05 (SE05)	17:04 17:03
24	06:15 20:45	06:44 20:09	19:12 (SE06) 07:13	18:45 (SE07) 17:39 (SE07)	18:35 07:43	18:04 (SE05) 18:03 (SE05)	17:03 17:02
25	06:16 20:44	06:45 20:07	19:10 (SE06) 07:13	18:44 (SE07) 17:38 (SE07)	18:34 06:44	18:02 (SE05) 18:01 (SE05)	17:02 17:01
26	06:17 20:43	06:46 20:06	19:35 (SE06) 07:14	19:18 17:38 (SE07)	18:44 (SE07) 06:45	18:00 (SE05) 17:59 (SE05)	17:01 17:00
27	06:18 20:43	06:47 20:04	19:08 (SE06) 07:15	19:15 18:43 (SE07)	17:31 17:30	17:57 (SE07) 17:56 (SE07)	17:00 16:59
28	06:19 20:42	06:48 20:03	19:07 (SE06) 07:16	19:14 18:42 (SE07)	17:29 17:28	17:55 (SE07) 17:54 (SE07)	16:58 16:57
29	06:20 20:41	06:48 20:01	19:36 (SE06) 07:17	19:13 17:38 (SE07)	18:42 (SE07) 06:48	18:00 (SE05) 17:59 (SE05)	17:00 16:59
30	06:21 20:40	06:49 20:00	19:07 (SE06) 07:18	19:12 18:41 (SE07)	17:27 17:26	17:53 (SE07) 17:52 (SE07)	16:58 16:57
31	06:21 20:39	06:50 19:58	19:37 (SE06) 07:19	19:11 18:40 (SE07)	17:26 17:25	17:51 (SE07) 17:50 (SE07)	17:00 16:59
Potential sun hours	455	425	374	347	317	292	
Total, worst case		264	1970	717			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F13 - C6

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December				
1	06:00 20:56	06:22 20:38	06:51 19:57	18:50 (SE06) 40 19:30 (SE06)	07:19 19:08	15:59 (SE07) 90 17:29 (SE07)	06:51 17:23	14:34 (SE07) 117 16:31 (SE07)	07:25 17:01	14:57 (SE07) 83 16:20 (SE07)
2	06:00 20:55	06:23 20:37	06:52 19:55	18:49 (SE06) 40 19:29 (SE06)	07:20 19:06	15:57 (SE07) 93 17:30 (SE07)	06:52 17:22	14:35 (SE07) 116 16:31 (SE07)	07:26 17:00	14:58 (SE07) 81 16:19 (SE07)
3	06:01 20:55	06:24 20:36	06:53 19:54	18:48 (SE06) 41 19:29 (SE06)	07:21 19:05	15:55 (SE07) 95 17:30 (SE07)	06:54 17:21	14:35 (SE07) 116 16:31 (SE07)	07:27 17:00	14:59 (SE07) 80 16:19 (SE07)
4	06:01 20:55	06:25 20:35	06:54 19:52	18:48 (SE06) 40 19:28 (SE06)	07:22 19:03	15:54 (SE07) 97 17:31 (SE07)	06:55 17:20	14:35 (SE07) 115 16:30 (SE07)	07:28 17:00	15:00 (SE07) 79 16:19 (SE07)
5	06:02 20:55	06:26 20:34	06:55 19:50	18:48 (SE06) 40 19:28 (SE06)	07:23 19:02	15:52 (SE07) 99 17:31 (SE07)	06:56 17:19	14:35 (SE07) 115 16:30 (SE07)	07:29 17:00	15:01 (SE07) 77 16:18 (SE07)
6	06:02 20:55	06:27 20:32	06:56 19:49	18:48 (SE06) 39 19:27 (SE06)	07:24 19:00	15:51 (SE07) 101 17:32 (SE07)	06:57 17:18	14:35 (SE07) 114 16:29 (SE07)	07:29 17:00	15:02 (SE07) 75 16:17 (SE07)
7	06:03 20:54	06:28 20:31	06:57 19:47	18:48 (SE06) 38 19:26 (SE06)	07:25 18:59	15:49 (SE07) 103 17:32 (SE07)	06:58 17:17	14:37 (SE07) 112 16:29 (SE07)	07:30 17:00	15:03 (SE07) 74 16:17 (SE07)
8	06:03 20:54	06:29 20:30	06:58 19:46	18:48 (SE06) 36 19:24 (SE06)	07:26 18:57	15:48 (SE07) 104 17:32 (SE07)	06:59 17:16	14:37 (SE07) 112 16:29 (SE07)	07:31 17:00	15:04 (SE07) 73 16:17 (SE07)
9	06:04 20:54	06:30 20:29	06:59 19:44	18:49 (SE06) 34 19:23 (SE06)	07:27 18:55	15:46 (SE07) 107 17:33 (SE07)	07:00 17:15	14:37 (SE07) 111 16:28 (SE07)	07:32 17:00	15:05 (SE07) 72 16:17 (SE07)
10	06:05 20:54	06:31 20:28	07:00 19:42	18:48 (SE06) 32 19:20 (SE06)	07:28 18:54	15:45 (SE07) 108 17:33 (SE07)	07:02 17:14	14:38 (SE07) 110 16:28 (SE07)	07:33 17:00	15:06 (SE07) 71 16:17 (SE07)
11	06:05 20:53	06:32 20:26	07:01 19:41	18:49 (SE06) 30 19:19 (SE06)	07:29 18:52	15:44 (SE07) 109 17:33 (SE07)	07:03 17:13	14:38 (SE07) 109 16:27 (SE07)	07:34 17:00	15:07 (SE07) 70 16:17 (SE07)
12	06:06 20:53	06:33 20:25	07:01 19:39	18:50 (SE06) 27 19:17 (SE06)	07:30 18:51	15:43 (SE07) 115 18:05 (SE05)	07:04 17:12	14:39 (SE07) 108 16:27 (SE07)	07:35 17:00	15:08 (SE07) 69 16:17 (SE07)
13	06:07 20:52	06:34 20:24	07:02 19:37	18:48 (SE06) 28 19:16 (SE06)	07:31 18:49	15:42 (SE07) 123 18:08 (SE05)	07:05 17:11	14:40 (SE07) 107 16:27 (SE07)	07:35 17:00	15:08 (SE07) 69 16:17 (SE07)
14	06:07 20:52	06:34 20:23	07:03 19:36	18:46 (SE04) 28 19:14 (SE06)	07:32 18:48	15:41 (SE07) 129 18:10 (SE05)	07:06 17:10	14:40 (SE07) 106 16:26 (SE07)	07:36 17:00	15:10 (SE07) 67 16:17 (SE07)
15	06:08 20:51	06:35 20:21	07:04 19:34	18:44 (SE04) 28 19:12 (SE06)	07:33 18:46	15:40 (SE07) 133 18:11 (SE05)	07:07 17:09	14:41 (SE07) 104 16:25 (SE07)	07:37 17:01	15:11 (SE07) 66 16:17 (SE07)
16	06:09 20:51	06:36 20:20	07:05 19:33	16:43 (SE07) 48 19:09 (SE06)	07:34 18:45	15:39 (SE07) 136 18:12 (SE05)	07:08 17:09	14:42 (SE07) 103 16:25 (SE07)	07:38 17:01	15:11 (SE07) 66 16:17 (SE07)
17	06:10 20:50	06:37 20:19	07:06 19:31	16:37 (SE07) 57 19:07 (SE04)	07:35 18:43	15:38 (SE07) 139 18:13 (SE05)	07:09 17:08	14:43 (SE07) 102 16:25 (SE07)	07:38 17:01	15:12 (SE07) 65 16:17 (SE07)
18	06:10 20:49	06:38 20:17	07:07 19:29	16:33 (SE07) 65 19:07 (SE04)	07:36 18:42	15:37 (SE07) 141 18:13 (SE05)	07:11 17:07	14:44 (SE07) 101 16:25 (SE07)	07:39 17:02	15:13 (SE07) 65 16:18 (SE07)
19	06:11 20:49	06:39 20:16	07:08 19:28	16:29 (SE07) 71 19:06 (SE04)	07:37 18:41	15:37 (SE07) 142 18:13 (SE05)	07:12 17:06	14:45 (SE07) 99 16:24 (SE07)	07:40 17:02	15:13 (SE07) 65 16:18 (SE07)
20	06:12 20:48	06:40 20:14	07:09 19:17 (SE06)	16:25 (SE07) 75 19:04 (SE04)	07:38 18:39	15:36 (SE07) 143 18:13 (SE05)	07:13 17:06	14:45 (SE07) 98 16:23 (SE07)	07:40 17:02	15:14 (SE07) 64 16:18 (SE07)
21	06:13 20:47	06:41 20:13	07:10 19:21 (SE06)	16:22 (SE07) 78 19:02 (SE04)	07:39 18:38	15:36 (SE07) 144 18:14 (SE05)	07:14 17:05	14:46 (SE07) 97 16:23 (SE07)	07:41 17:03	15:14 (SE07) 64 16:18 (SE07)
22	06:14 20:47	06:42 20:12	07:11 19:23 (SE06)	16:19 (SE07) 82 19:01 (SE04)	07:40 18:36	15:36 (SE07) 143 18:13 (SE05)	07:15 17:05	14:48 (SE07) 95 16:23 (SE07)	07:41 17:03	15:15 (SE07) 64 16:19 (SE07)
23	06:15 20:46	06:43 20:10	07:12 19:00 (SE06)	16:16 (SE07) 84 18:59 (SE04)	07:42 18:35	15:35 (SE07) 143 18:12 (SE05)	07:16 17:04	14:49 (SE07) 94 16:23 (SE07)	07:42 17:04	15:15 (SE07) 64 16:19 (SE07)
24	06:15 20:45	06:44 20:09	07:13 18:58 (SE06)	16:14 (SE07) 85 18:57 (SE04)	07:43 18:34	15:35 (SE07) 141 18:11 (SE05)	07:17 17:03	14:49 (SE07) 93 16:22 (SE07)	07:42 17:04	15:16 (SE07) 65 16:21 (SE07)
25	06:16 20:44	06:45 20:07	07:14 18:56 (SE06)	16:11 (SE07) 87 18:56 (SE04)	07:44 17:32	15:34 (SE07) 139 17:09 (SE05)	07:18 17:03	14:50 (SE07) 91 16:21 (SE07)	07:43 17:05	15:16 (SE07) 65 16:21 (SE07)
26	06:17 20:43	06:46 20:06	07:14 18:55 (SE06)	16:09 (SE07) 87 18:54 (SE04)	07:45 17:31	14:34 (SE07) 137 17:08 (SE05)	07:19 17:03	14:51 (SE07) 90 16:21 (SE07)	07:43 17:06	15:16 (SE07) 65 16:21 (SE07)
27	06:18 20:43	06:47 20:04	07:15 18:54 (SE06)	16:07 (SE07) 86 18:53 (SE04)	07:46 17:30	14:34 (SE07) 134 17:06 (SE05)	07:20 17:02	14:52 (SE07) 88 16:20 (SE07)	07:43 17:06	15:17 (SE07) 66 16:23 (SE07)
28	06:19 20:42	06:48 20:03	07:16 18:53 (SE06)	16:05 (SE07) 82 17:27 (SE07)	07:47 17:28	14:34 (SE07) 132 17:06 (SE05)	07:22 17:02	14:53 (SE07) 87 16:20 (SE07)	07:44 17:07	15:17 (SE07) 66 16:23 (SE07)
29	06:20 20:41	06:48 20:01	07:17 18:52 (SE06)	16:03 (SE07) 85 17:28 (SE07)	07:48 17:27	14:34 (SE07) 128 17:04 (SE05)	07:23 17:01	14:54 (SE07) 85 16:19 (SE07)	07:44 17:08	15:17 (SE07) 67 16:24 (SE07)
30	06:21 20:40	06:49 20:00	07:18 18:51 (SE06)	16:01 (SE07) 88 17:29 (SE07)	07:49 17:26	14:34 (SE07) 118 16:32 (SE07)	07:24 17:01	14:55 (SE07) 84 16:19 (SE07)	07:44 17:08	15:17 (SE07) 67 16:24 (SE07)
31	06:22 20:39	06:50 19:58	07:19 19:30 (SE06)	18:51 (SE06) 39 19:30 (SE06)	06:50 19:10	14:34 (SE07) 117 16:31 (SE07)	06:50 17:25	14:55 (SE07) 84 16:19 (SE07)	07:44 17:09	15:16 (SE07) 69 16:25 (SE07)
Potential sun hours	455	425	374	374	347	301	292	301	292	253
Total, worst case		345	1681	3783	3079	2153				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F14 - ENTE URBANO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:45 17:10	07:33 17:43	06:59 18:15	16:48 (SE07) 18:15	18:58 (SE06) 19:09 (SE06)	06:26 05:59
2	07:45 17:11	07:32 17:44	17:05 (SE07) 18:16	06:57 18:16	16:50 (SE07) 17:28 (SE07)	07:08 19:48
3	07:45 17:12	07:31 17:45	17:00 (SE07) 18:17	06:56 18:17	16:50 (SE07) 17:26 (SE07)	07:07 19:49
4	07:45 17:13	07:30 17:47	16:57 (SE07) 18:18	06:54 18:18	16:52 (SE07) 17:25 (SE07)	07:05 19:50
5	07:45 17:13	07:29 17:48	16:55 (SE07) 18:20	06:53 18:20	16:54 (SE07) 17:22 (SE07)	07:04 19:51
6	07:45 17:14	07:28 17:49	16:54 (SE07) 18:21	06:51 18:21	16:56 (SE07) 17:20 (SE07)	07:02 19:52
7	07:45 17:15	07:27 17:50	16:52 (SE07) 18:22	06:50 18:22	16:59 (SE07) 17:16 (SE07)	07:00 19:53
8	07:45 17:16	07:26 17:51	16:51 (SE07) 18:23	06:48 18:23	17:05 (SE07) 17:09 (SE07)	06:59 19:54
9	07:45 17:17	07:25 17:52	16:50 (SE07) 18:24	06:46 18:24	16:50 (SE07) 17:28 (SE07)	06:57 19:55
10	07:45 17:18	07:24 17:54	16:50 (SE07) 18:25	06:45 18:25	16:50 (SE07) 17:30 (SE07)	06:56 19:56
11	07:45 17:19	07:22 17:55	16:48 (SE07) 18:26	06:43 18:26	18:02 (SE04) 18:05 (SE04)	06:54 19:57
12	07:44 17:20	07:21 17:56	16:47 (SE07) 18:27	06:42 18:27	17:59 (SE04) 18:06 (SE04)	06:53 19:58
13	07:44 17:21	07:20 17:57	16:47 (SE07) 18:28	06:40 18:28	17:57 (SE04) 18:08 (SE04)	06:51 19:59
14	07:44 17:22	07:19 17:58	16:47 (SE07) 18:29	06:39 18:29	17:56 (SE04) 18:08 (SE04)	06:50 20:00
15	07:43 17:23	07:18 17:59	16:46 (SE07) 18:30	06:37 18:30	17:55 (SE04) 18:09 (SE04)	06:48 20:01
16	07:43 17:25	07:16 18:01	16:45 (SE07) 18:31	06:36 18:31	17:55 (SE04) 18:11 (SE06)	06:47 20:02
17	07:43 17:26	07:15 18:02	16:45 (SE07) 18:32	06:34 18:32	17:54 (SE04) 18:11 (SE06)	06:45 20:03
18	07:42 17:27	07:14 18:03	16:45 (SE07) 18:33	06:32 18:33	17:54 (SE04) 18:13 (SE06)	06:44 20:04
19	07:42 17:28	07:12 18:04	16:45 (SE07) 18:34	06:31 18:34	17:54 (SE04) 18:14 (SE06)	06:42 20:05
20	07:41 17:29	07:11 18:05	16:45 (SE07) 18:35	06:29 18:35	17:54 (SE04) 18:14 (SE06)	06:41 20:06
21	07:41 17:30	07:10 18:06	16:45 (SE07) 18:36	06:28 18:36	17:55 (SE06) 18:16 (SE06)	06:39 20:07
22	07:40 17:31	07:08 18:07	16:45 (SE07) 18:37	06:26 18:37	17:53 (SE06) 18:16 (SE06)	06:38 20:08
23	07:40 17:32	07:07 18:09	16:45 (SE07) 18:38	06:24 18:38	17:52 (SE06) 18:17 (SE06)	06:37 20:09
24	07:39 17:34	07:06 18:10	16:45 (SE07) 18:39	06:23 18:39	17:53 (SE06) 18:19 (SE06)	06:35 20:10
25	07:38 17:35	07:04 18:11	16:46 (SE07) 18:40	06:21 18:40	17:52 (SE06) 18:19 (SE06)	06:34 20:11
26	07:37 17:36	07:03 18:12	16:47 (SE07) 18:41	06:19 18:41	17:52 (SE06) 18:19 (SE06)	06:33 20:12
27	07:37 17:37	07:01 18:13	16:47 (SE07) 18:42	06:18 18:42	17:52 (SE06) 18:18 (SE06)	06:31 20:13
28	07:36 17:38	07:00 18:14	16:48 (SE07) 18:43	06:16 18:43	17:52 (SE06) 18:16 (SE06)	06:30 20:14
29	07:35 17:39		17:30 (SE07) 19:46	07:15 19:44	18:53 (SE06) 19:16 (SE06)	06:29 20:15
30	07:34 17:41		17:30 (SE07) 19:45	07:13 19:45	18:54 (SE06) 19:14 (SE06)	06:27 20:16
31	07:34 17:42		17:30 (SE07) 19:46	07:11 19:46	18:56 (SE06) 19:12 (SE06)	06:27 20:16
Potential sun hours	301	299	370	618	397	448
Total, worst case		1207		618	11	448

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F14 - ENTE URBANO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08		
2	06:00 20:55	06:23 20:37	06:52 19:55	07:20 19:06	9 18:37 (SE04)	06:51 16:19 (SE07)
3	06:01 20:55	06:24 20:36	06:53 19:53	07:21 19:05	6 18:45 (SE04)	39 16:58 (SE07)
4	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03		38 16:58 (SE07)
5	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02		36 16:57 (SE07)
6	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	13 17:38 (SE07)	30 16:54 (SE07)
7	06:03 20:54	06:28 20:31	06:57 19:47	07:25 18:59	21 17:51 (SE07)	27 16:52 (SE07)
8	06:03 20:54	06:29 20:30	06:58 19:46	07:26 18:57	27 17:33 (SE07)	22 16:50 (SE07)
9	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:55	30 17:54 (SE07)	16 16:47 (SE07)
10	06:05 20:53	06:31 20:28	07:00 19:42	07:28 18:54	34 17:28 (SE07)	5 16:42 (SE07)
11	06:05 20:53	06:32 20:26	07:00 19:41	07:29 18:52	37 17:24 (SE07)	07:02 17:14
12	06:06 20:53	06:33 20:25	07:01 19:39	07:30 18:51	39 18:01 (SE07)	07:03 17:13
13	06:07 20:52	06:33 20:24	07:02 19:37	07:31 18:49	41 17:23 (SE07)	07:04 17:12
14	06:07 20:52	06:34 20:23	07:03 19:36	07:32 18:48	48 18:02 (SE07)	07:05 17:11
15	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	54 18:10 (SE05)	07:06 17:10
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	56 17:19 (SE07)	07:07 17:09
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	58 18:13 (SE05)	07:08 17:08
18	06:10 20:49	06:38 20:17	07:07 19:29	07:36 18:42	59 17:18 (SE07)	07:09 17:07
19	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:40	60 18:15 (SE05)	07:10 17:06
20	06:12 20:48	06:40 20:14	07:09 19:26	07:38 18:39	60 17:16 (SE07)	07:11 17:05
21	06:13 20:47	06:41 20:13	07:10 19:24	07:39 18:38	59 18:15 (SE05)	07:12 17:04
22	06:14 20:47	06:42 20:12	07:11 19:23	07:40 18:36	59 17:16 (SE07)	07:13 17:03
23	06:14 20:46	06:43 20:10	07:12 19:21	07:41 18:35	58 18:14 (SE05)	07:14 17:02
24	06:15 20:45	06:44 20:09	07:13 19:19	07:42 18:34	57 17:15 (SE07)	07:15 17:01
25	06:16 20:44	06:45 20:07	07:13 19:18	07:43 18:33	56 18:12 (SE05)	07:16 17:00
26	06:17 20:43	06:46 20:06	07:14 19:16	07:44 18:32	54 16:15 (SE07)	07:17 16:59
27	06:18 20:43	06:47 20:04	07:15 19:15	07:45 18:31	54 17:09 (SE05)	07:18 17:02
28	06:19 20:42	06:48 20:03	07:16 19:13	07:46 18:30	53 16:15 (SE07)	07:19 17:01
29	06:20 20:41	06:48 20:01	07:17 19:11	07:47 18:29	51 17:06 (SE05)	07:20 17:00
30	06:21 20:40	06:49 20:00	07:18 19:10	07:48 18:28	46 16:16 (SE07)	07:21 16:58
31	06:21 20:39	06:50 19:58		06:50 17:25	44 17:01 (SE07)	07:22 17:01
Potential sun hours	455	425	374	347	301	292
Total, worst case			398	1214	246	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F15 - ENTE URBANO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:45 17:10	07:33 17:43	06:59 18:15	17:05 (SE07) 18:15 42	19:00 (SE06) 19:17 (SE06)	06:26 20:17
2	07:45 17:11	07:32 17:44	06:57 18:16	17:06 (SE07) 17:48 (SE07) 42	19:02 (SE06) 19:14 (SE06) 12	06:25 20:18
3	07:45 17:12	07:31 17:45	06:56 18:17	17:06 (SE07) 17:47 (SE07) 41	19:06 (SE06) 19:10 (SE06) 4	06:24 20:19
4	07:45 17:13	07:30 17:47	06:54 18:18	17:06 (SE07) 17:47 (SE07) 41	07:05 19:50	06:22 20:20
5	07:45 17:13	07:29 17:48	06:53 18:20	17:06 (SE07) 17:45 (SE07) 39	07:04 19:51	06:21 20:21
6	07:45 17:14	07:28 17:49	06:51 18:21	17:07 (SE07) 17:45 (SE07) 38	07:02 19:52	06:20 20:22
7	07:45 17:15	07:27 17:50	06:50 18:22	17:07 (SE07) 17:44 (SE07) 37	07:00 19:53	06:19 20:23
8	07:45 17:16	07:26 17:51	06:48 18:23	17:08 (SE07) 17:42 (SE07) 34	06:59 19:54	06:18 20:24
9	07:45 17:17	07:25 17:52	06:46 18:24	17:09 (SE07) 17:41 (SE07) 32	06:57 19:55	06:17 20:25
10	07:45 17:18	07:23 17:54	06:45 18:25	17:10 (SE07) 17:39 (SE07) 29	06:56 19:56	06:16 20:26
11	07:45 17:19	07:22 17:55	06:43 18:26	17:12 (SE07) 17:38 (SE07) 26	06:54 19:57	06:15 20:27
12	07:44 17:20	07:21 17:56	06:42 18:27	17:14 (SE07) 17:35 (SE07) 21	06:53 19:58	06:14 20:28
13	07:44 17:21	07:20 17:57	06:40 18:28	17:17 (SE07) 17:32 (SE07) 15	06:51 19:59	06:13 20:29
14	07:44 17:22	07:19 17:58	06:39 18:29	06:50 20:00	06:12 20:30	05:56 20:52
15	07:43 17:23	07:18 17:59	17:21 (SE07) 17:36 (SE07) 15	06:37 18:30	06:48 20:01	06:11 20:31
16	07:43 17:24	07:16 18:01	17:17 (SE07) 17:38 (SE07) 21	06:35 18:31	06:47 20:02	06:10 20:32
17	07:43 17:26	07:15 18:02	17:15 (SE07) 17:40 (SE07) 25	06:34 18:32	06:45 20:03	06:09 20:32
18	07:42 17:27	07:14 18:03	17:14 (SE07) 17:42 (SE07) 28	06:32 18:33	06:44 20:04	06:08 20:33
19	07:42 17:28	07:12 18:04	17:12 (SE07) 17:42 (SE07) 30	06:31 18:34	18:08 (SE06) 18:14 (SE06) 6	06:42 20:05
20	07:41 17:29	07:11 18:05	17:11 (SE07) 17:44 (SE07) 33	06:29 18:35	18:05 (SE06) 18:14 (SE06) 9	06:41 20:06
21	07:41 17:30	07:10 18:06	17:10 (SE07) 17:45 (SE07) 35	06:28 18:36	18:03 (SE06) 18:16 (SE06) 13	06:39 20:07
22	07:40 17:31	07:08 18:07	17:08 (SE07) 17:46 (SE07) 38	06:26 18:37	18:01 (SE06) 18:16 (SE06) 15	06:38 20:08
23	07:40 17:32	07:07 18:09	17:08 (SE07) 17:47 (SE07) 39	06:24 18:38	18:00 (SE06) 18:17 (SE06) 17	06:37 20:09
24	07:39 17:34	07:06 18:10	17:07 (SE07) 17:47 (SE07) 40	06:23 18:39	18:00 (SE06) 18:19 (SE06) 19	06:35 20:10
25	07:38 17:35	07:04 18:11	17:07 (SE07) 17:48 (SE07) 41	06:21 18:40	17:58 (SE06) 18:19 (SE06) 21	06:34 20:11
26	07:37 17:36	07:03 18:12	17:07 (SE07) 17:48 (SE07) 41	06:19 18:41	17:59 (SE06) 18:21 (SE06) 22	06:33 20:12
27	07:37 17:37	07:01 18:13	17:06 (SE07) 17:48 (SE07) 42	06:18 18:42	17:58 (SE06) 18:21 (SE06) 23	06:31 20:13
28	07:36 17:38	07:00 18:14	17:06 (SE07) 17:48 (SE07) 42	06:16 18:43	17:58 (SE06) 18:21 (SE06) 23	06:30 20:14
29	07:35 17:39		07:15 19:44	18:58 (SE06) 19:21 (SE06) 23	06:29 20:15	06:00 20:43
30	07:34 17:41		07:13 19:45	18:58 (SE06) 19:20 (SE06) 22	06:27 20:16	06:00 20:43
31	07:34 17:42		07:11 19:46	19:00 (SE06) 19:19 (SE06) 19		05:59 20:44
Potential sun hours	301	299	470	370	397	448
Total, worst case			470	669	33	448

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F15 - ENTE URBANO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September		October		November	December	
1	06:00 20:56	06:22 20:38	06:51 19:57		07:19 19:08	18	17:55 (SE07) 18:13 (SE07)	06:51 17:23	07:25 17:01
2	06:00 20:55	06:23 20:37	06:52 19:55		07:20 19:06	23	17:52 (SE07) 18:15 (SE07)	06:52 17:22	07:26 17:00
3	06:01 20:55	06:24 20:36	06:53 19:53		07:21 19:05	28	17:49 (SE07) 18:17 (SE07)	06:54 17:21	07:27 17:00
4	06:01 20:55	06:25 20:35	06:54 19:52		07:22 19:03	30	17:48 (SE07) 18:18 (SE07)	06:55 17:20	07:28 17:00
5	06:02 20:55	06:26 20:34	06:55 19:50		07:23 19:02	33	17:46 (SE07) 18:19 (SE07)	06:56 17:19	07:29 17:00
6	06:02 20:55	06:27 20:32	06:56 19:49		07:24 19:00	36	17:44 (SE07) 18:20 (SE07)	06:57 17:18	07:29 17:00
7	06:03 20:54	06:28 20:31	06:57 19:47		07:25 18:59	37	17:43 (SE07) 18:20 (SE07)	06:58 17:17	07:30 17:00
8	06:03 20:54	06:29 20:30	06:58 19:46		07:26 18:57	39	17:42 (SE07) 18:21 (SE07)	06:59 17:16	07:31 17:00
9	06:04 20:54	06:30 20:29	06:59 19:44		07:27 18:55	40	17:41 (SE07) 18:21 (SE07)	07:00 17:15	07:32 17:00
10	06:05 20:53	06:31 20:28	07:00 19:42	3	19:01 (SE06) 19:04 (SE06)	40	17:41 (SE07) 18:21 (SE07)	07:00 17:14	07:32 17:00
11	06:05 20:53	06:32 20:26	07:00 19:41	12	18:55 (SE06) 19:07 (SE06)	40	17:40 (SE07) 18:21 (SE07)	07:02 17:14	07:33 17:00
12	06:06 20:53	06:33 20:25	07:01 19:39	16	18:51 (SE06) 19:10 (SE06)	41	17:39 (SE07) 18:21 (SE07)	07:04 17:12	07:35 17:00
13	06:07 20:52	06:33 20:24	07:02 19:37	19	18:50 (SE06) 19:11 (SE06)	42	17:39 (SE07) 18:21 (SE07)	07:05 17:11	07:35 17:00
14	06:07 20:52	06:34 20:23	07:03 19:36	21	18:49 (SE06) 19:11 (SE06)	42	17:39 (SE07) 18:21 (SE07)	07:06 17:10	07:36 17:00
15	06:08 20:51	06:35 20:21	07:04 19:34	22	18:48 (SE06) 19:11 (SE06)	42	17:38 (SE07) 18:20 (SE07)	07:07 17:09	07:37 17:01
16	06:09 20:51	06:36 20:20	07:05 19:33	23	18:47 (SE06) 19:11 (SE06)	42	17:38 (SE07) 18:20 (SE07)	07:08 17:09	07:38 17:01
17	06:10 20:50	06:37 20:19	07:06 19:31	24	18:47 (SE06) 19:09 (SE06)	42	17:38 (SE07) 18:19 (SE07)	07:09 17:08	07:38 17:01
18	06:10 20:49	06:38 20:17	07:07 19:29	22	18:47 (SE06) 19:08 (SE06)	41	17:39 (SE07) 18:18 (SE07)	07:11 17:07	07:39 17:02
19	06:11 20:49	06:39 20:16	07:08 19:28	21	18:47 (SE06) 19:06 (SE06)	39	17:39 (SE07) 18:17 (SE07)	07:12 17:06	07:39 17:02
20	06:12 20:48	06:40 20:14	07:09 19:26	19	18:46 (SE06) 19:04 (SE06)	38	17:39 (SE07) 18:16 (SE07)	07:13 17:06	07:40 17:02
21	06:13 20:47	06:41 20:13	07:10 19:24	18	18:46 (SE06) 19:02 (SE06)	37	17:41 (SE07) 18:15 (SE07)	07:14 17:05	07:41 17:03
22	06:14 20:47	06:42 20:12	07:11 19:23	16	18:47 (SE06) 19:01 (SE06)	34	17:42 (SE07) 18:14 (SE07)	07:15 17:05	07:41 17:03
23	06:14 20:46	06:43 20:10	07:12 19:21	14	18:49 (SE06) 18:59 (SE06)	32	17:43 (SE07) 18:12 (SE07)	07:16 17:04	07:42 17:04
24	06:15 20:45	06:44 20:09	07:13 19:19	10	18:51 (SE06) 18:57 (SE06)	29	17:44 (SE07) 18:11 (SE07)	07:17 17:03	07:42 17:04
25	06:16 20:44	06:45 20:07	07:13 19:18	6	18:51 (SE06) 17:59 (SE07)	27	16:45 (SE07) 17:09 (SE07)	07:18 17:03	07:43 17:05
26	06:17 20:43	06:46 20:06	07:14 19:16		18:46 (SE06) 17:59 (SE07)	24	16:47 (SE07) 17:07 (SE07)	07:19 17:02	07:43 17:06
27	06:18 20:43	06:47 20:04	07:15 19:15		18:46 (SE06) 17:59 (SE07)	20	16:50 (SE07) 17:03 (SE07)	07:20 17:02	07:43 17:06
28	06:19 20:42	06:48 20:03	07:16 19:13		18:47 (SE06) 17:59 (SE07)	13	17:03 (SE07)	07:22	07:44
29	06:20 20:41	06:48 20:01	07:17 19:11		18:48 (SE06) 17:59 (SE07)			07:23	07:44
30	06:21 20:40	06:49 20:00	07:18 19:10	11	18:10 (SE07)			17:01	07:44
31	06:21 20:39	06:50 19:58			06:50 17:25				07:44 17:09
Potential sun hours	455	425	374		347	909		301	292
Total, worst case			277						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F16 - A4 - Abitazione

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June		
1	07:45 17:10	15:29 (SE07) 16:06 (SE07)	07:33 17:43	06:59 18:15	17:20 (SE06) 17:49 (SE04)	07:10 19:47	06:26 20:17	05:59 20:45
2	07:45 17:11	15:30 (SE07) 16:06 (SE07)	07:32 17:44	06:57 18:16	17:21 (SE06) 17:49 (SE04)	07:08 19:48	06:25 20:18	05:58 20:46
3	07:45 17:12	15:31 (SE07) 16:06 (SE07)	07:31 17:45	06:56 18:17	17:21 (SE06) 17:46 (SE06)	07:07 19:49	06:24 20:19	05:58 20:46
4	07:45 17:13	15:32 (SE07) 16:06 (SE07)	07:30 17:47	06:54 18:18	17:23 (SE06) 17:45 (SE06)	07:05 19:50	06:22 20:20	05:58 20:47
5	07:45 17:13	15:33 (SE07) 16:06 (SE07)	07:29 17:48	06:53 18:20	17:23 (SE06) 17:43 (SE06)	07:04 19:51	06:21 20:21	05:57 20:48
6	07:45 17:14	15:33 (SE07) 16:05 (SE07)	07:28 17:49	06:51 18:21	17:26 (SE06) 17:41 (SE06)	07:02 19:52	06:20 20:22	05:57 20:48
7	07:45 17:15	15:34 (SE07) 16:05 (SE07)	07:27 17:50	06:50 18:22	17:28 (SE06) 17:38 (SE06)	07:00 19:53	06:19 20:23	05:57 20:49
8	07:45 17:16	15:35 (SE07) 16:05 (SE07)	07:26 17:51	06:48 18:23		06:59 19:54	06:18 20:24	05:57 20:49
9	07:45 17:17	15:37 (SE07) 16:05 (SE07)	07:25 17:52	06:46 18:24		06:57 19:55	06:17 20:25	05:56 20:50
10	07:45 17:18	15:38 (SE07) 16:05 (SE07)	07:24 17:54	06:45 18:25		06:56 19:56	06:16 20:26	05:56 20:51
11	07:45 17:19	15:40 (SE07) 16:04 (SE07)	07:22 17:55	06:43 18:26		06:54 19:57	06:15 20:27	05:56 20:51
12	07:44 17:20	15:41 (SE07) 16:03 (SE07)	07:21 17:56	06:42 18:27		06:53 19:58	06:14 20:28	05:56 20:52
13	07:44 17:21	15:44 (SE07) 16:02 (SE07)	07:20 17:57	06:40 18:28		06:51 19:59	06:13 20:29	05:56 20:52
14	07:44 17:22	15:45 (SE07) 16:00 (SE07)	07:19 17:58	06:39 18:29		06:50 20:00	06:12 20:30	05:56 20:53
15	07:43 17:23	15:49 (SE07) 15:57 (SE07)	07:18 17:59	06:37 18:30		06:48 20:01	06:11 20:31	05:56 20:53
16	07:43 17:24		07:16 18:01	06:36 18:31		06:47 20:02	06:10 20:32	05:56 20:53
17	07:43 17:26		07:15 18:02	06:34 18:32	17:32 (SE06) 17:39 (SE06)	06:45 20:03	06:09 20:32	05:56 20:54
18	07:42 17:27		07:14 18:03	06:32 18:33	17:28 (SE06) 17:42 (SE06)	06:44 20:04	06:08 20:33	05:56 20:54
19	07:42 17:28		07:12 18:04	06:31 18:34	17:26 (SE06) 17:42 (SE06)	06:42 20:05	06:07 20:34	05:56 20:54
20	07:41 17:29		07:11 18:05	06:29 18:35	17:24 (SE06) 17:44 (SE06)	06:41 20:06	06:06 20:35	05:56 20:55
21	07:41 17:30		07:10 18:06	06:28 18:36	17:24 (SE06) 17:45 (SE06)	06:39 20:07	06:06 20:36	05:56 20:55
22	07:40 17:31		07:08 18:07	06:26 18:37	17:22 (SE06) 17:46 (SE06)	06:38 20:08	06:05 20:37	05:57 20:55
23	07:40 17:32		07:07 18:09	06:24 18:38	17:22 (SE06) 17:47 (SE06)	06:37 20:09	06:04 20:38	05:57 20:55
24	07:39 17:34		07:06 18:10	06:23 18:39	17:20 (SE06) 17:48 (SE06)	06:35 20:10	06:03 20:39	05:57 20:55
25	07:38 17:35		07:04 18:11	06:21 18:40	17:20 (SE06) 17:50 (SE04)	06:34 20:11	06:03 20:39	05:57 20:55
26	07:38 17:36		07:03 18:12	06:19 18:41	17:21 (SE06) 17:51 (SE04)	06:33 20:12	06:02 20:40	05:58 20:56
27	07:37 17:37		07:01 18:13	06:18 18:42	17:20 (SE06) 17:51 (SE04)	06:31 20:13	06:01 20:41	05:58 20:56
28	07:36 17:38		07:00 18:14	06:16 18:43	17:21 (SE06) 17:51 (SE04)	06:30 20:14	06:01 20:42	05:58 20:56
29	07:35 17:39			07:15 19:44		06:29 20:15	06:00 20:43	05:59 20:56
30	07:34 17:41			07:13 19:45		06:27 20:16	06:00 20:43	05:59 20:56
31	07:34 17:42			07:11 19:46			05:59 20:44	
Potential sun hours	301	299	370	397	445	448		
Total, worst case	410	276	149					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F16 - A4 - Abitazione

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08	06:51 17:23	07:25 17:01
2	06:00 20:55	06:23 20:37	06:52 19:55	07:20 19:06	06:52 17:22	07:26 17:00
3	06:01 20:55	06:24 20:36	06:53 19:53	07:21 19:05	06:54 17:21	07:27 17:00
4	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 17:20	07:28 17:00
5	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	06:56 17:19	07:29 17:00
6	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	18:08 (SE06) 18:11 (SE06)	06:57 17:18
7	06:03 20:54	06:28 20:31	06:57 19:47	07:25 18:59	18:03 (SE06) 18:16 (SE06)	06:58 17:17
8	06:03 20:54	06:29 20:30	06:58 19:46	07:26 18:57	18:00 (SE06) 18:18 (SE06)	06:59 17:16
9	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:55	17:58 (SE06) 18:19 (SE06)	07:00 17:15
10	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	17:57 (SE06) 18:20 (SE06)	07:02 17:14
11	06:05 20:53	06:32 20:26	07:01 19:41	07:29 18:52	17:55 (SE06) 18:22 (SE04)	07:03 17:13
12	06:06 20:53	06:33 20:25	07:01 19:39	07:30 18:51	17:54 (SE06) 18:23 (SE04)	07:04 17:12
13	06:07 20:52	06:33 20:24	07:02 19:37	07:31 18:49	17:53 (SE06) 18:23 (SE04)	07:05 17:11
14	06:07 20:52	06:34 20:23	07:03 19:36	07:32 18:48	17:53 (SE06) 18:23 (SE04)	07:06 17:10
15	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	17:52 (SE06) 18:23 (SE04)	07:07 17:09
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	17:52 (SE06) 18:22 (SE04)	07:08 17:09
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	17:52 (SE06) 18:21 (SE04)	07:09 17:08
18	06:10 20:49	06:38 20:17	07:07 19:29	07:36 18:42	17:52 (SE06) 18:19 (SE06)	07:11 17:07
19	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:40	17:52 (SE06) 18:18 (SE06)	07:12 17:06
20	06:12 20:48	06:40 20:14	07:09 19:26	07:38 18:39	17:53 (SE06) 18:16 (SE06)	07:13 17:06
21	06:13 20:47	06:41 20:13	07:10 19:24	07:39 18:38	17:54 (SE06) 18:15 (SE06)	07:14 17:05
22	06:14 20:47	06:42 20:12	07:11 19:23	07:40 18:36	17:55 (SE06) 18:14 (SE06)	07:15 17:05
23	06:14 20:46	06:43 20:10	07:12 19:21	07:41 18:35	17:57 (SE06) 18:12 (SE06)	07:16 17:04
24	06:15 20:45	06:44 20:09	07:13 19:19	07:43 18:34	17:59 (SE06) 18:11 (SE06)	07:17 17:03
25	06:16 20:44	06:45 20:07	07:13 19:18	07:44 17:32	17:03 (SE06) 17:07 (SE06)	07:18 17:03
26	06:17 20:43	06:46 20:06	07:14 19:16	06:45 17:31	07:19 17:02	07:43 17:06
27	06:18 20:43	06:47 20:04	07:15 19:15	06:46 17:30	07:20 17:02	15:29 (SE07) 15:36 (SE07)
28	06:19 20:42	06:48 20:03	07:16 19:13	06:47 17:28	07:22 17:02	15:26 (SE07) 15:39 (SE07)
29	06:20 20:41	06:48 20:01	07:17 19:11	06:48 17:27	07:23 17:01	15:24 (SE07) 15:42 (SE07)
30	06:21 20:40	06:49 20:00	07:18 19:10	06:49 17:26	07:24 17:01	15:22 (SE07) 15:44 (SE07)
31	06:21 20:39	06:50 19:58		06:50 17:25		07:44 17:09
Potential sun hours	455	425	374	347	301	292
Total, worst case				431	60	1119

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F17 - F3-C1

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June		
1	07:45 17:10	07:33 17:43	16:52 (SE05) 17:06 (SE05)	06:59 18:15	17:15 (SE06) 17:41 (SE04)	07:10 19:47	06:26 20:17	05:59 20:45
2	07:45 17:11	07:32 17:44	16:54 (SE05) 17:04 (SE05)	06:57 18:16	17:17 (SE06) 17:36 (SE06)	07:08 19:48	06:25 20:18	05:58 20:46
3	07:45 17:12	07:31 17:45	16:57 (SE05) 17:01 (SE05)	06:56 18:17	17:18 (SE06) 17:33 (SE06)	07:07 19:49	06:24 20:19	05:58 20:46
4	07:45 17:13	07:30 17:47	07:30 17:50	06:54 18:18	17:23 (SE06) 17:29 (SE06)	07:05 19:50	06:22 20:20	05:58 20:47
5	07:45 17:13	07:29 17:48	07:29 17:50	06:53 18:20	07:04 19:51	06:21 20:21	05:57 20:48	05:57 20:48
6	07:45 17:14	07:28 17:49	07:28 17:50	06:51 18:21	07:02 19:52	06:20 20:22	05:57 20:48	05:57 20:48
7	07:45 17:15	07:27 17:50	07:27 17:50	06:50 18:22	07:00 19:53	06:19 20:23	05:57 20:49	05:57 20:49
8	07:45 17:16	07:26 17:51	07:26 17:51	06:48 18:23	06:59 19:54	06:18 20:24	05:57 20:50	05:57 20:50
9	07:45 17:17	07:25 17:52	07:25 17:52	06:46 18:24	06:57 19:55	06:17 20:25	05:56 20:50	05:56 20:50
10	07:45 17:18	07:24 17:54	07:24 17:54	06:45 18:25	06:56 19:56	06:16 20:26	05:56 20:51	05:56 20:51
11	07:45 17:19	07:22 17:55	07:22 17:55	06:43 18:26	06:54 19:57	06:15 20:27	05:56 20:51	05:56 20:51
12	07:44 17:20	07:21 17:56	17:21 (SE06) 17:33 (SE06)	06:42 18:27	06:53 19:58	06:14 20:28	05:56 20:52	05:56 20:52
13	07:44 17:21	16:53 (SE05) 16:55 (SE05)	07:20 17:57	17:19 (SE06) 17:35 (SE06)	06:40 18:28	06:51 19:59	06:13 20:29	05:56 20:52
14	07:44 17:22	16:50 (SE05) 16:57 (SE05)	07:19 17:58	17:17 (SE06) 17:36 (SE06)	06:39 18:29	06:50 20:00	06:12 20:30	05:56 20:53
15	07:43 17:23	16:49 (SE05) 16:59 (SE05)	07:18 17:59	17:16 (SE06) 17:38 (SE06)	06:37 18:30	06:48 20:01	06:11 20:31	05:56 20:53
16	07:43 17:25	16:49 (SE05) 17:00 (SE05)	07:16 18:01	17:14 (SE06) 17:38 (SE06)	06:36 18:31	06:47 20:02	06:10 20:32	05:56 20:53
17	07:43 17:26	16:48 (SE05) 17:01 (SE05)	07:15 18:02	17:14 (SE06) 17:40 (SE06)	06:34 18:32	06:45 20:03	06:09 20:32	05:56 20:54
18	07:42 17:27	16:48 (SE05) 17:03 (SE05)	07:14 18:03	17:13 (SE06) 17:42 (SE06)	06:32 18:33	06:44 20:04	06:08 20:33	05:56 20:54
19	07:42 17:28	16:47 (SE05) 17:03 (SE05)	07:12 18:04	17:12 (SE06) 17:42 (SE04)	06:31 18:34	06:42 20:05	06:07 20:34	05:56 20:54
20	07:41 17:29	16:47 (SE05) 17:05 (SE05)	07:11 18:05	17:12 (SE06) 17:44 (SE04)	06:29 18:35	06:41 20:06	06:06 20:35	05:56 20:55
21	07:41 17:30	16:47 (SE05) 17:06 (SE05)	07:10 18:06	17:12 (SE06) 17:45 (SE04)	06:28 18:36	06:39 20:07	06:06 20:36	05:56 20:55
22	07:40 17:31	16:46 (SE05) 17:07 (SE05)	07:08 18:07	17:11 (SE06) 17:46 (SE04)	06:26 18:37	06:38 20:08	06:05 20:37	05:57 20:55
23	07:40 17:32	16:47 (SE05) 17:08 (SE05)	07:07 18:09	17:12 (SE06) 17:47 (SE04)	06:24 18:38	06:37 20:09	06:04 20:38	05:57 20:55
24	07:39 17:34	16:47 (SE05) 17:08 (SE05)	07:06 18:10	17:11 (SE06) 17:46 (SE04)	06:23 18:39	06:35 20:10	06:03 20:39	05:57 20:55
25	07:38 17:35	16:47 (SE05) 17:08 (SE05)	07:04 18:11	17:12 (SE06) 17:46 (SE04)	06:21 18:40	06:34 20:11	06:03 20:39	05:57 20:56
26	07:38 17:36	16:47 (SE05) 17:08 (SE05)	07:03 18:12	17:13 (SE06) 17:46 (SE04)	06:19 18:41	06:33 20:12	06:02 20:40	05:58 20:56
27	07:37 17:37	16:48 (SE05) 17:09 (SE05)	07:01 18:13	17:13 (SE06) 17:44 (SE04)	06:18 18:42	06:31 20:13	06:01 20:41	05:58 20:56
28	07:36 17:38	16:49 (SE05) 17:09 (SE05)	07:00 18:14	17:14 (SE06) 17:43 (SE04)	06:16 18:43	06:30 20:14	06:01 20:42	05:58 20:56
29	07:35 17:39	16:49 (SE05) 17:08 (SE05)	07:00 18:14	17:15 (SE06) 17:44 (SE04)	06:15 18:44	06:29 20:15	06:00 20:43	05:59 20:56
30	07:34 17:41	16:50 (SE05) 17:08 (SE05)	07:00 18:14	17:16 (SE06) 17:45 (SE04)	06:14 18:45	06:27 20:16	06:00 20:43	05:59 20:56
31	07:34 17:42	16:51 (SE05) 17:07 (SE05)	07:00 18:14	17:17 (SE06) 17:46 (SE04)	06:13 18:46	06:26 20:17	06:00 20:44	05:59 20:56
Potential sun hours	301	299	370	397	445	448		
Total, worst case	310	503	66					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F17 - F3-C1

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October		November		December	
1	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08		06:51 17:23		07:25 17:01	
2	06:00 20:55	06:23 20:37	06:52 19:55	07:20 19:06		06:52 17:22		07:26 17:00	
3	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05		06:54 17:21		07:27 17:00	
4	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03		06:55 17:20		07:28 17:00	
5	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02		06:56 17:19		07:29 17:00	
6	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00		06:57 17:18		07:29 17:00	
7	06:03 20:54	06:28 20:31	06:57 19:47	07:25 18:59		06:58 17:17		07:30 17:00	
8	06:03 20:54	06:29 20:30	06:58 19:46	07:26 18:57		06:59 17:16	5	16:28 (SE05) 16:33 (SE05)	07:31 17:00
9	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:55		07:00 17:15	10	16:25 (SE05) 16:35 (SE05)	07:32 17:00
10	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	11	17:55 (SE06) 18:06 (SE06)	14	16:23 (SE05) 16:37 (SE05)	07:33 17:00
11	06:05 20:53	06:32 20:26	07:00 19:41	07:29 18:52	16	17:52 (SE06) 18:08 (SE06)	16	16:22 (SE05) 16:38 (SE05)	07:34 17:00
12	06:06 20:53	06:33 20:25	07:01 19:39	07:30 18:51	24	17:49 (SE06) 18:13 (SE04)	18	16:22 (SE05) 16:40 (SE05)	07:35 17:00
13	06:07 20:52	06:33 20:24	07:02 19:37	07:31 18:49	27	17:48 (SE06) 18:15 (SE04)	19	16:21 (SE05) 16:40 (SE05)	07:35 17:00
14	06:07 20:52	06:34 20:23	07:03 19:36	07:32 18:48	30	17:46 (SE06) 18:16 (SE04)	21	16:20 (SE05) 16:41 (SE05)	07:36 17:00
15	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	32	17:45 (SE06) 18:17 (SE04)	21	16:20 (SE05) 16:41 (SE05)	07:37 17:01
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	34	17:44 (SE06) 18:18 (SE04)	21	16:20 (SE05) 16:41 (SE05)	07:38 17:01
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	35	17:43 (SE06) 18:18 (SE04)	21	16:21 (SE05) 16:42 (SE05)	07:38 17:01
18	06:10 20:49	06:38 20:17	07:07 19:29	07:36 18:42	35	17:43 (SE06) 18:18 (SE04)	21	16:21 (SE05) 16:42 (SE05)	07:39 17:02
19	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	36	17:42 (SE06) 18:18 (SE04)	21	16:21 (SE05) 16:42 (SE05)	07:40 17:02
20	06:12 20:48	06:40 20:14	07:09 19:26	07:38 18:39	34	17:42 (SE06) 18:16 (SE04)	21	16:21 (SE05) 16:42 (SE05)	07:40 17:02
21	06:13 20:47	06:41 20:13	07:10 19:24	07:39 18:38	32	17:43 (SE06) 18:15 (SE04)	19	16:22 (SE05) 16:41 (SE05)	07:41 17:03
22	06:14 20:47	06:42 20:12	07:11 19:23	07:40 18:36	31	17:43 (SE06) 18:14 (SE04)	18	16:23 (SE05) 16:41 (SE05)	07:41 17:03
23	06:15 20:46	06:43 20:10	07:12 19:21	07:41 18:35	29	17:43 (SE06) 18:12 (SE06)	16	16:24 (SE05) 16:40 (SE05)	07:42 17:04
24	06:15 20:45	06:44 20:09	07:13 19:19	07:43 18:34	28	17:43 (SE06) 18:11 (SE06)	15	16:25 (SE05) 16:40 (SE05)	07:42 17:04
25	06:16 20:44	06:45 20:07	07:13 19:18	07:44 18:32	26	16:43 (SE06) 17:09 (SE06)	13	16:26 (SE05) 16:39 (SE05)	07:43 17:05
26	06:17 20:43	06:46 20:06	07:14 19:16	07:45 18:31	24	16:44 (SE06) 17:08 (SE06)	11	16:27 (SE05) 16:38 (SE05)	07:43 17:06
27	06:18 20:43	06:47 20:04	07:15 19:15	07:46 18:30	21	16:45 (SE06) 17:06 (SE06)	10	16:28 (SE05) 16:38 (SE05)	07:43 17:06
28	06:19 20:42	06:48 20:03	07:16 19:13	07:47 18:28	19	16:47 (SE06) 17:06 (SE06)	7	16:30 (SE05) 16:37 (SE05)	07:44 17:07
29	06:20 20:41	06:48 20:01	07:17 19:11	07:48 18:27	15	16:49 (SE06) 17:04 (SE06)	4	16:32 (SE05) 16:36 (SE05)	07:44 17:08
30	06:21 20:40	06:49 20:00	07:18 19:10	07:49 18:26	10	16:52 (SE06) 17:02 (SE06)			07:44 17:08
31	06:21 20:39	06:50 19:58		06:50 17:25					07:44 17:09
Potential sun hours	455	425	374	347		301		292	
Total, worst case				549		342			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F19 - D10

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:45 17:10	08:37 (SE07) 16:33 (SE04)	07:33 17:43	16:02 (SE04) 17:17 (SE03)	06:59 18:15	07:10 19:47
2	07:45 17:11	08:38 (SE07) 16:34 (SE04)	07:32 17:44	16:04 (SE04) 17:17 (SE03)	06:57 18:16	07:08 19:48
3	07:45 17:12	08:38 (SE07) 16:34 (SE04)	07:31 17:45	16:06 (SE04) 17:17 (SE03)	06:56 18:17	07:07 19:49
4	07:45 17:13	08:39 (SE07) 16:35 (SE04)	07:30 17:47	16:08 (SE04) 17:18 (SE03)	06:54 18:19	07:05 19:50
5	07:45 17:14	08:40 (SE07) 16:35 (SE04)	07:29 17:48	16:11 (SE04) 17:18 (SE03)	06:53 18:20	07:04 19:51
6	07:45 17:14	08:41 (SE07) 16:36 (SE04)	07:28 17:49	16:16 (SE04) 17:18 (SE03)	06:51 18:21	07:02 19:52
7	07:45 17:15	08:42 (SE07) 16:36 (SE04)	07:27 17:50	16:53 (SE03) 17:18 (SE03)	06:50 18:22	07:00 19:53
8	07:45 17:16	08:43 (SE07) 16:36 (SE04)	07:26 17:51	16:54 (SE03) 17:18 (SE03)	06:48 18:23	06:59 19:54
9	07:45 17:17	08:44 (SE07) 16:37 (SE04)	07:25 17:53	16:54 (SE03) 17:18 (SE03)	06:47 18:24	06:57 19:55
10	07:45 17:18	08:46 (SE07) 16:38 (SE04)	07:24 17:54	16:55 (SE03) 17:17 (SE03)	06:45 18:25	06:56 19:56
11	07:45 17:19	08:48 (SE07) 16:38 (SE04)	07:22 17:55	16:57 (SE03) 17:16 (SE03)	06:43 18:26	06:54 19:57
12	07:44 17:20	08:49 (SE07) 16:38 (SE04)	07:21 17:56	16:57 (SE03) 17:14 (SE03)	06:42 18:27	06:53 19:58
13	07:44 17:21	08:52 (SE07) 16:39 (SE04)	07:20 17:57	16:59 (SE03) 17:13 (SE03)	06:40 18:28	06:51 19:59
14	07:44 17:22	08:55 (SE07) 16:40 (SE04)	07:19 17:58	17:02 (SE03) 17:10 (SE03)	06:39 18:29	06:50 20:00
15	07:43 17:23	13:05 (SE06) 16:39 (SE04)	07:18 18:00		06:37 18:30	06:48 20:01
16	07:43 17:25	13:09 (SE06) 16:40 (SE04)	07:16 18:01		06:36 18:31	06:47 20:02
17	07:43 17:26	13:15 (SE06) 16:40 (SE04)	07:15 18:02		06:34 18:32	06:45 20:03
18	07:42 17:27	15:51 (SE04) 16:41 (SE04)	07:14 18:03		06:32 18:33	06:44 20:04
19	07:42 17:28	15:51 (SE04) 16:40 (SE04)	07:13 18:04		06:31 18:34	06:42 20:05
20	07:41 17:29	15:52 (SE04) 16:41 (SE04)	07:11 18:05		06:29 18:35	06:41 20:06
21	07:41 17:30	15:52 (SE04) 16:41 (SE04)	07:10 18:06		06:28 18:36	06:40 20:07
22	07:40 17:31	15:52 (SE04) 16:40 (SE04)	07:09 18:08		06:26 18:37	06:38 20:08
23	07:40 17:32	15:54 (SE04) 16:41 (SE04)	07:07 18:09		06:24 18:38	06:37 20:09
24	07:39 17:34	15:54 (SE04) 16:40 (SE04)	07:06 18:10		06:23 18:39	06:35 20:10
25	07:38 17:35	15:55 (SE04) 17:05 (SE03)	07:04 18:11		06:21 18:40	06:34 20:11
26	07:38 17:36	15:55 (SE04) 17:09 (SE03)	07:03 18:12		06:20 18:41	06:33 20:12
27	07:37 17:37	15:57 (SE04) 17:12 (SE03)	07:02 18:13		06:18 18:42	06:31 20:13
28	07:36 17:38	15:58 (SE04) 17:13 (SE03)	07:00 18:14		06:16 18:43	06:30 20:14
29	07:35 17:39	15:59 (SE04) 17:14 (SE03)			07:15 19:44	06:00 20:15
30	07:34 17:41	16:00 (SE04) 17:15 (SE03)			07:13 19:45	06:27 20:16
31	07:34 17:42	16:01 (SE04) 17:16 (SE03)			07:12 19:46	05:59 20:44
Potential sun hours	301	299	370	397	445	448
Total, worst case	2881	443				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F19 - D10

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December		
1	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08	06:51 17:24	16:24 (SE03) 17:01	07:25 124	08:30 (SE07) 16:20 (SE04)
2	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07	06:53 17:22	16:24 (SE03) 16:48 (SE03)	07:26 131	08:29 (SE07) 16:21 (SE04)
3	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05	06:54 17:21	16:23 (SE03) 16:48 (SE03)	07:27 135	08:28 (SE07) 16:21 (SE04)
4	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 17:20	16:23 (SE03) 16:48 (SE03)	07:28 138	08:28 (SE07) 16:21 (SE04)
5	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	06:56 17:19	15:45 (SE04) 16:48 (SE03)	07:29 143	08:28 (SE07) 16:22 (SE04)
6	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	06:57 17:18	15:41 (SE04) 16:48 (SE03)	07:30 146	08:26 (SE07) 16:21 (SE04)
7	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59	06:58 17:17	15:39 (SE04) 16:49 (SE03)	07:30 149	08:26 (SE07) 16:22 (SE04)
8	06:03 20:54	06:29 20:30	06:58 19:46	07:26 18:57	06:59 17:16	15:37 (SE04) 16:48 (SE03)	07:31 151	08:26 (SE07) 16:22 (SE04)
9	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:55	07:00 17:15	15:35 (SE04) 16:48 (SE03)	07:32 154	08:26 (SE07) 16:22 (SE04)
10	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	07:02 17:14	15:33 (SE04) 16:47 (SE03)	07:33 155	08:27 (SE07) 16:23 (SE04)
11	06:05 20:53	06:32 20:26	07:01 19:41	07:29 18:52	07:03 17:13	15:32 (SE04) 16:47 (SE03)	07:34 157	08:27 (SE07) 16:23 (SE04)
12	06:06 20:53	06:33 20:25	07:01 19:39	07:30 18:51	07:04 17:12	15:32 (SE04) 16:47 (SE03)	07:35 159	08:27 (SE07) 16:24 (SE04)
13	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49	07:05 17:11	15:31 (SE04) 16:46 (SE03)	07:35 159	08:27 (SE07) 16:24 (SE04)
14	06:08 20:52	06:34 20:23	07:03 19:36	07:32 18:48	07:06 17:10	15:30 (SE04) 16:45 (SE03)	07:36 160	08:27 (SE07) 16:24 (SE04)
15	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	07:07 17:09	15:29 (SE04) 16:43 (SE03)	07:37 161	08:28 (SE07) 16:25 (SE04)
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	07:08 17:09	15:29 (SE04) 16:43 (SE03)	07:38 163	08:27 (SE07) 16:25 (SE04)
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	07:10 17:08	15:29 (SE04) 16:39 (SE03)	07:38 163	08:28 (SE07) 16:25 (SE04)
18	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42	07:11 17:07	15:28 (SE04) 16:14 (SE04)	07:39 163	08:29 (SE07) 16:26 (SE04)
19	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	07:12 17:06	15:28 (SE04) 16:15 (SE04)	07:40 163	08:29 (SE07) 16:26 (SE04)
20	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39	07:13 17:06	15:27 (SE04) 16:15 (SE04)	07:40 164	08:29 (SE07) 16:27 (SE04)
21	06:13 20:47	06:41 20:13	07:10 19:24	07:39 18:38	07:14 17:05	15:27 (SE04) 16:16 (SE04)	07:41 165	08:29 (SE07) 16:27 (SE04)
22	06:14 20:47	06:42 20:12	07:11 19:23	07:40 18:36	07:15 17:05	15:28 (SE04) 16:17 (SE04)	07:41 165	08:30 (SE07) 16:28 (SE04)
23	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35	07:16 17:04	15:28 (SE04) 16:17 (SE04)	07:42 165	08:30 (SE07) 16:28 (SE04)
24	06:15 20:45	06:44 20:09	07:13 19:19	07:43 18:34	07:17 17:03	15:28 (SE04) 16:18 (SE04)	07:42 164	08:31 (SE07) 16:29 (SE04)
25	06:16 20:44	06:45 20:07	07:14 19:18	07:44 17:32	07:18 17:03	12:53 (SE06) 16:18 (SE04)	07:43 163	08:32 (SE07) 16:29 (SE04)
26	06:17 20:44	06:46 20:06	07:14 19:16	06:45 17:31	07:19 17:03	12:48 (SE06) 16:18 (SE04)	07:43 163	08:32 (SE07) 16:29 (SE04)
27	06:18 20:43	06:47 20:04	07:15 19:15	06:46 17:30	07:21 17:02	12:44 (SE06) 16:18 (SE04)	07:43 162	08:33 (SE07) 16:30 (SE04)
28	06:19 20:42	06:48 20:03	07:16 19:13	06:47 17:28	07:22 17:02	08:35 (SE07) 16:19 (SE04)	07:44 162	08:34 (SE07) 16:31 (SE04)
29	06:20 20:41	06:49 20:01	07:17 19:11	06:48 17:27	07:23 17:01	08:32 (SE07) 16:19 (SE04)	07:44 160	08:34 (SE07) 16:31 (SE04)
30	06:21 20:40	06:49 20:00	07:18 19:10	06:49 17:26	07:24 17:01	08:31 (SE07) 16:20 (SE04)	07:44 160	08:34 (SE07) 16:31 (SE04)
31	06:22 20:39	06:50 19:58		06:50 17:25			07:45 159	08:35 (SE07) 16:32 (SE04)
Potential sun hours	455	425	374	347	301		292	
Total, worst case				62	1682		4826	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F20 - D10

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:45 17:10	07:33 17:43	06:59 18:15	07:10 19:47	06:26 20:17	05:59 20:45	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08	06:51 17:24	07:25 17:01
2	07:45 17:11	07:32 17:44	06:57 18:16	07:08 19:48	06:25 20:18	05:58 20:46	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07	06:53 17:22	07:26 17:01
3	07:45 17:12	07:31 17:45	06:56 18:17	07:07 19:49	06:24 20:19	05:58 20:46	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05	06:54 17:21	07:27 17:00
4	07:45 17:13	07:30 17:47	06:54 18:19	07:05 19:50	06:22 20:20	05:58 20:47	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 17:20	07:28 17:00
5	07:45 17:14	07:29 17:48	06:53 18:20	07:04 19:51	06:21 20:21	05:57 20:48	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	06:56 17:19	07:29 17:00
6	07:45 17:14	07:28 17:49	06:51 18:21	07:02 19:52	06:20 20:22	05:57 20:48	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	06:57 17:18	07:30 17:00
7	07:45 17:15	07:27 17:50	06:50 18:22	07:00 19:53	06:19 20:23	05:57 20:49	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59	06:58 17:17	07:30 17:00
8	07:45 17:16	07:26 17:51	06:48 18:23	06:59 19:54	06:18 20:24	05:57 20:50	06:03 20:54	06:29 20:30	06:58 19:46	07:26 18:57	06:59 17:16	07:31 17:00
9	07:45 17:17	07:25 17:53	06:47 18:24	06:57 19:55	06:17 20:25	05:56 20:50	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:55	07:00 17:15	07:32 17:00
10	07:45 17:18	07:24 17:54	06:45 18:25	06:56 19:56	06:16 20:26	05:56 20:51	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	07:02 17:14	07:33 17:00
11	07:45 17:19	07:22 17:55	06:43 18:26	06:54 19:57	06:15 20:27	05:56 20:51	06:05 20:53	06:32 20:26	07:01 19:41	07:29 18:52	07:03 17:13	07:34 17:00
12	07:44 17:20	07:21 17:56	06:42 18:27	06:53 19:58	06:14 20:28	05:56 20:52	06:06 20:53	06:33 20:25	07:01 19:39	07:30 18:51	07:04 17:12	07:35 17:00
13	07:44 17:21	07:20 17:57	06:40 18:28	06:51 19:59	06:13 20:29	05:56 20:52	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49	07:05 17:11	07:35 17:00
14	07:44 17:22	07:19 17:58	06:39 18:29	06:50 20:00	06:12 20:30	05:56 20:53	06:08 20:52	06:34 20:23	07:03 19:36	07:32 18:48	07:06 17:10	07:36 17:00
15	07:44 17:23	07:18 18:00	06:37 18:30	06:48 20:01	06:11 20:31	05:56 20:53	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	07:07 17:09	07:37 17:01
16	07:43 17:25	07:16 18:01	06:36 18:31	06:47 20:02	06:10 20:32	05:56 20:53	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	07:08 17:09	07:38 17:01
17	07:43 17:26	07:15 18:02	06:34 18:32	06:45 20:03	06:09 20:33	05:56 20:54	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	07:10 17:08	07:38 17:01
18	07:42 17:27	07:14 18:03	06:32 18:33	06:44 20:04	06:08 20:33	05:56 20:54	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42	07:11 17:07	07:39 17:02
19	07:42 17:28	07:13 18:04	06:31 18:34	06:42 20:05	06:07 20:34	05:56 20:54	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	07:12 17:06	07:40 17:02
20	07:41 17:29	07:11 18:05	06:29 18:35	06:41 20:06	06:06 20:35	05:56 20:55	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39	07:13 17:06	07:40 17:02
21	07:41 17:30	07:10 18:06	06:28 18:36	06:40 20:07	06:06 20:36	05:56 20:55	06:13 20:48	06:41 20:13	07:10 19:24	07:39 18:38	07:14 17:05	07:41 17:03
22	07:40 17:31	07:09 18:08	06:26 18:37	06:38 20:08	06:05 20:37	05:57 20:55	06:14 20:47	06:42 20:12	07:11 19:23	07:40 18:36	07:15 17:05	07:41 17:03
23	07:40 17:32	07:07 18:09	06:24 18:38	06:37 20:09	06:04 20:38	05:57 20:55	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35	07:16 17:04	07:42 17:04
24	07:39 17:34	07:06 18:10	06:23 18:39	06:35 20:10	06:03 20:39	05:57 20:55	06:15 20:45	06:44 20:09	07:13 19:20	07:43 18:34	07:17 17:03	07:42 17:04
25	07:38 17:35	07:04 18:11	06:21 18:40	06:34 20:11	06:03 20:40	05:57 20:56	06:16 20:44	06:45 20:07	07:14 19:18	07:44 17:32	07:18 17:03	07:43 17:05
26	07:38 17:36	07:03 18:12	06:20 18:41	06:33 20:12	06:02 20:40	05:58 20:56	06:17 20:44	06:46 20:06	07:14 19:16	07:45 17:31	07:19 17:03	07:43 17:06
27	07:37 17:37	07:02 18:13	06:18 18:42	06:31 20:13	06:01 20:41	05:58 20:56	06:18 20:43	06:47 20:04	07:15 19:15	07:46 17:30	07:21 17:02	07:43 17:06
28	07:36 17:38	07:00 18:14	06:16 18:43	06:30 20:14	06:01 20:42	05:58 20:56	06:19 20:42	06:48 20:03	07:16 19:13	07:47 17:28	07:22 17:02	07:44 17:07
29	07:35 17:39		07:15 19:44	06:29 20:15	06:00 20:43	05:59 20:56	06:20 20:41	06:49 20:01	07:17 19:11	07:48 17:27	07:23 17:01	07:44 17:08
30	07:34 17:41		07:13 19:45	06:27 20:16	06:00 20:44	05:59 20:56	06:21 20:40	06:49 20:00	07:18 19:10	07:49 17:26	07:24 17:01	07:44 17:08
31	07:34 17:42		07:12 19:46		05:59 20:44		06:22 20:39	06:50 19:58		06:50 17:25		07:45 17:09
Potential sun hours	301	299	370	397	445	448	455	425	374	347	301	292
Total, worst case												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F21 - C2
 Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:45 17:10	07:33 17:43	17:00 (SE01) 17:19 (SE01)	06:59 18:15	07:10 19:47	06:26 20:17	05:59 20:45	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08	06:51 16:35 (SE01)
2	07:45 17:11	07:32 17:44	17:00 (SE01) 17:21 (SE01)	06:57 18:16	19:47 19:48	06:25 20:18	05:58 20:46	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07	06:53 16:34 (SE01)
3	07:45 17:12	07:31 17:45	17:00 (SE01) 17:22 (SE01)	06:56 18:17	19:47 19:49	06:24 20:19	05:58 20:46	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05	06:54 16:33 (SE01)
4	07:45 17:13	07:30 17:47	17:01 (SE01) 17:23 (SE01)	06:54 18:19	19:47 19:50	06:23 20:20	05:58 20:47	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 16:32 (SE01)
5	07:45 17:14	07:29 17:48	17:01 (SE01) 17:23 (SE01)	06:53 18:20	19:47 19:51	06:21 20:21	05:57 20:48	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	06:56 16:31 (SE01)
6	07:45 17:14	07:28 17:49	17:01 (SE01) 17:23 (SE01)	06:51 18:21	19:47 19:52	06:20 20:22	05:57 20:48	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00	06:57 16:31 (SE01)
7	07:45 17:15	07:27 17:50	17:02 (SE01) 17:23 (SE01)	06:50 18:22	19:47 19:53	06:19 20:23	05:57 20:49	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59	06:58 16:31 (SE01)
8	07:45 17:16	07:26 17:51	17:03 (SE01) 17:22 (SE01)	06:48 18:23	19:47 19:54	06:18 20:24	05:57 20:50	06:03 20:54	06:29 20:30	06:58 19:46	07:26 18:57	06:59 16:31 (SE01)
9	07:45 17:17	07:25 17:53	17:05 (SE01) 17:21 (SE01)	06:47 18:24	19:47 19:55	06:17 20:25	05:56 20:50	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:55	07:00 17:15
10	07:45 17:18	07:24 17:54	17:06 (SE01) 17:20 (SE01)	06:45 18:25	19:47 19:56	06:16 20:26	05:56 20:51	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	07:02 17:14
11	07:45 17:19	07:22 17:55	17:09 (SE01) 17:18 (SE01)	06:43 18:26	19:47 19:57	06:15 20:27	05:56 20:51	06:05 20:53	06:32 20:27	07:01 19:41	07:29 18:52	07:03 17:14
12	07:44 17:20	07:21 17:56	06:42 18:27	06:53 19:58	20:14 20:28	05:56 20:52	06:06 20:53	06:33 20:25	07:01 19:39	07:30 18:51	07:30 17:12	18:18 16:50 (SE01)
13	07:44 17:21	07:20 17:57	06:40 18:28	06:51 19:59	20:14 20:29	05:56 20:52	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49	07:31 17:11	17:00 16:48 (SE01)
14	07:44 17:22	07:19 17:58	06:39 18:29	06:50 20:00	20:14 20:30	05:56 20:53	06:08 20:52	06:34 20:23	07:03 19:36	07:32 18:48	07:32 17:10	17:00 16:47 (SE01)
15	07:44 17:23	07:18 18:00	06:37 18:30	06:48 20:01	20:14 20:31	05:56 20:53	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	07:33 17:09	17:00 16:46 (SE01)
16	07:43 17:25	07:16 18:01	06:36 18:31	06:47 20:02	20:14 20:32	05:56 20:53	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	07:34 17:09	17:00 16:46 (SE01)
17	07:43 17:26	07:15 18:02	06:34 18:32	06:45 20:03	20:14 20:33	05:56 20:54	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	07:35 17:08	17:00 16:45 (SE01)
18	07:42 17:27	07:14 18:03	06:32 18:33	06:44 20:04	20:14 20:33	05:56 20:54	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42	07:36 17:11	17:00 16:44 (SE01)
19	07:42 17:28	07:13 18:04	06:31 18:34	06:42 20:05	20:14 20:34	05:56 20:54	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	07:37 17:12	17:00 16:44 (SE01)
20	07:41 17:29	07:11 18:05	06:29 18:35	06:41 20:06	20:14 20:35	05:56 20:55	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39	07:38 17:13	17:00 16:44 (SE01)
21	07:41 17:30	07:10 18:06	06:28 18:36	06:40 20:07	20:14 20:36	05:56 20:55	06:13 20:48	06:41 20:13	07:10 19:24	07:39 18:38	07:39 17:14	17:00 16:44 (SE01)
22	07:40 17:31	07:09 18:08	06:26 18:37	06:38 20:08	20:14 20:37	05:57 20:55	06:14 20:47	06:42 20:12	07:11 19:23	07:41 18:36	07:41 17:15	17:00 16:44 (SE01)
23	07:40 17:32	07:07 18:09	06:24 18:38	06:37 20:09	20:14 20:38	05:57 20:55	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35	07:42 17:16	17:00 16:44 (SE01)
24	07:39 17:34	17:07 (SE01) 17:10 (SE01)	07:06 18:10	06:23 18:39	20:14 20:39	06:03 20:55	05:57 20:45	06:15 20:09	06:44 19:20	07:13 18:34	07:43 17:04	17:00 16:44 (SE01)
25	07:38 17:35	17:04 (SE01) 17:11 (SE01)	07:04 18:11	06:21 18:40	20:14 20:40	06:03 20:56	05:57 20:44	06:16 20:07	06:45 19:18	07:14 17:32	07:44 17:03	17:00 16:45 (SE01)
26	07:38 17:36	17:03 (SE01) 17:12 (SE01)	07:03 18:12	06:20 18:41	20:14 20:40	06:02 20:56	05:58 20:44	06:17 20:06	06:46 19:16	07:15 17:31	07:45 17:03	17:00 16:45 (SE01)
27	07:37 17:37	17:03 (SE01) 17:14 (SE01)	07:02 18:13	06:18 18:42	20:14 20:41	06:02 20:56	05:58 20:43	06:18 20:04	06:47 19:15	07:15 17:30	07:46 17:02	17:00 16:46 (SE01)
28	07:36 17:38	17:02 (SE01) 17:15 (SE01)	07:00 18:14	06:16 18:43	20:14 20:42	06:01 20:56	05:58 20:42	06:19 20:03	06:48 19:13	07:16 17:28	07:47 17:02	17:00 16:47 (SE01)
29	07:35 17:39	17:15 (SE01) 17:16 (SE01)	07:01 18:14	06:15 19:44	20:14 20:15	06:00 20:43	05:59 20:56	06:20 20:41	06:49 20:01	07:17 19:11	07:48 17:27	17:00 16:48 (SE01)
30	07:34 17:41	17:17 (SE01) 17:17 (SE01)	07:00 18:14	06:14 19:45	20:14 20:16	06:00 20:44	05:59 20:56	06:21 20:40	06:49 20:00	07:18 19:10	07:49 17:26	17:00 16:48 (SE01)
31	07:34 17:42	17:00 (SE01) 17:18 (SE01)	07:00 18:14	06:12 19:46	20:14 20:16	05:59 20:44	06:00 20:56	06:22 20:39	06:50 19:58	07:19 17:25	07:50 17:25	17:00 16:47 (SE01)
Potential sun hours	301	299	301	301	301	301	301	301	301	301	301	301
Total, worst case	92	207	370	397	445	448	455	425	374	347	10	291

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F22 - C2
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:45 17:10	07:33 17:43	17:01 (SE01) 17:19 (SE01)	06:59 18:15	07:10 19:47	06:26 20:17	05:59 20:45	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08	06:51 16:34 (SE01)
2	07:45 17:11	07:32 17:44	17:01 (SE01) 17:21 (SE01)	06:57 18:16	19:48 20:18	06:25 20:46	05:58 20:56	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07	06:53 16:34 (SE01)
3	07:45 17:12	07:31 17:45	17:01 (SE01) 17:22 (SE01)	06:56 18:17	19:49 20:19	06:24 20:48	05:58 20:55	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05	06:54 16:33 (SE01)
4	07:45 17:13	07:30 17:47	17:01 (SE01) 17:23 (SE01)	06:54 18:19	19:50 20:20	06:23 20:47	05:58 20:55	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 16:32 (SE01)
5	07:45 17:14	07:29 17:48	17:01 (SE01) 17:25 (SE01)	06:53 18:20	19:51 20:21	06:21 20:48	05:57 20:48	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02	06:56 16:32 (SE01)
6	07:45 17:14	07:28 17:49	17:02 (SE01) 17:25 (SE01)	06:51 18:21	19:52 20:22	06:20 20:48	05:57 20:48	06:02 20:52	06:27 20:32	06:56 19:49	07:24 19:00	06:57 16:31 (SE01)
7	07:45 17:15	07:27 17:50	17:02 (SE01) 17:25 (SE01)	06:50 18:22	19:53 20:23	06:19 20:49	05:57 20:49	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59	06:58 16:32 (SE01)
8	07:45 17:16	07:26 17:51	17:03 (SE01) 17:25 (SE01)	06:48 18:23	19:54 20:24	06:18 20:50	05:57 20:50	06:03 20:54	06:29 20:30	06:58 19:46	07:26 18:57	06:59 16:32 (SE01)
9	07:45 17:17	07:25 17:53	17:04 (SE01) 17:24 (SE01)	06:47 18:24	19:55 20:25	06:17 20:50	05:56 20:54	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:55	07:00 16:32 (SE01)
10	07:45 17:18	07:24 17:54	17:05 (SE01) 17:23 (SE01)	06:45 18:25	19:56 20:26	06:16 20:51	05:56 20:54	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	07:02 16:32 (SE01)
11	07:45 17:19	07:22 17:55	17:07 (SE01) 17:22 (SE01)	06:43 18:26	19:57 20:27	06:15 20:51	05:56 20:53	06:05 20:53	06:32 20:27	07:01 19:41	07:29 18:52	07:03 16:34 (SE01)
12	07:44 17:20	07:21 17:56	17:08 (SE01) 17:20 (SE01)	06:42 18:27	19:58 20:28	06:14 20:52	05:56 20:53	06:06 20:53	06:33 20:25	07:01 19:39	07:30 18:51	07:04 16:49 (SE01)
13	07:44 17:21	07:20 17:57	17:12 (SE01) 17:16 (SE01)	06:40 18:28	19:59 20:29	06:13 20:52	05:56 20:52	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49	07:05 16:35 (SE01)
14	07:44 17:22	07:19 17:58	06:39 18:29	06:50 20:00	20:12 20:30	05:56 20:53	06:08 20:52	06:34 20:23	07:03 19:36	07:32 18:48	07:32 17:11	07:06 16:48 (SE01)
15	07:44 17:23	07:18 18:00	06:37 18:30	06:48 20:01	20:11 20:31	05:56 20:53	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	07:07 17:09	07:37 16:46 (SE01)
16	07:43 17:25	07:16 18:01	06:36 18:31	06:47 20:02	20:10 20:32	05:56 20:53	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	07:08 17:09	07:38 16:46 (SE01)
17	07:43 17:26	07:15 18:02	06:34 18:32	06:45 20:03	20:09 20:33	05:56 20:54	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	07:10 17:08	07:38 16:45 (SE01)
18	07:42 17:27	07:14 18:03	06:32 18:33	06:44 20:04	20:08 20:33	05:56 20:54	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42	07:11 17:02	07:39 17:02
19	07:42 17:28	07:13 18:04	06:31 18:34	06:42 20:05	20:07 20:34	05:56 20:54	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	07:12 17:06	07:40 17:02
20	07:41 17:29	07:11 18:05	06:29 18:35	06:41 20:06	20:06 20:35	05:56 20:55	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39	07:13 17:06	07:40 17:02
21	07:41 17:30	07:10 18:06	06:28 18:36	06:40 20:07	20:06 20:36	05:56 20:55	06:13 20:48	06:41 20:13	07:10 19:24	07:39 18:38	07:14 17:05	07:41 17:03
22	07:40 17:31	07:09 18:08	06:26 18:37	06:38 20:08	20:07 20:37	05:57 20:55	06:14 20:47	06:42 20:12	07:11 19:23	07:41 18:36	07:15 17:05	07:41 17:03
23	07:40 17:32	07:07 18:09	06:24 18:38	06:37 20:09	20:08 20:38	05:57 20:55	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35	07:16 17:04	07:42 17:04
24	07:39 17:34	07:06 18:10	06:23 18:39	06:35 20:10	20:09 20:39	05:57 20:55	06:15 20:45	06:44 20:09	07:13 19:20	07:43 18:34	07:17 17:04	07:42 17:04
25	07:38 17:35	17:09 (SE01) 17:11 (SE01)	07:04 18:11	06:21 18:40	20:08 20:11	05:57 20:56	06:16 20:44	06:45 20:07	07:14 19:18	07:44 17:32	07:18 17:03	07:43 17:05
26	07:38 17:36	17:06 (SE01) 17:12 (SE01)	07:03 18:12	06:20 18:41	20:09 20:12	05:58 20:56	06:17 20:44	06:46 20:06	07:15 19:16	07:45 17:31	07:19 17:03	07:43 17:06
27	07:37 17:37	17:05 (SE01) 17:14 (SE01)	07:02 18:13	06:18 18:42	20:10 20:13	05:58 20:56	06:18 20:43	06:47 20:04	07:15 19:15	07:46 17:30	07:21 17:02	07:43 17:06
28	07:36 17:38	17:04 (SE01) 17:15 (SE01)	07:00 18:14	06:16 18:43	20:11 20:14	05:58 20:56	06:19 20:42	06:48 20:03	07:16 19:13	07:47 17:28	07:22 17:02	07:44 17:07
29	07:35 17:39	17:03 (SE01) 17:16 (SE01)	07:04 18:04	06:15 19:44	20:10 20:15	05:59 20:56	06:20 20:41	06:49 20:01	07:17 19:11	07:48 17:27	07:23 17:04	07:44 17:08
30	07:34 17:41	17:02 (SE01) 17:17 (SE01)	07:04 18:13	06:14 19:45	20:11 20:16	05:59 20:56	06:21 20:40	06:49 20:00	07:18 19:10	07:49 17:26	07:24 17:01	07:44 17:08
31	07:34 17:42	17:02 (SE01) 17:18 (SE01)	07:04 18:14	06:12 19:46	20:12 20:44	05:59 20:56	06:22 20:39	06:50 19:58	07:19 374	07:50 347	17:25 16:51 (SE01)	07:45 17:09
Potential sun hours	301	299		370	397	445	448	455	425	374	347	301
Total, worst case	72	242									36	281

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F23 - D10

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:45	16:32 (SE02)	07:33	07:52 (SE07)	06:59	07:10
1	17:10	13 16:45 (SE02)	17:43	46 08:38 (SE06)	18:15	19:47
2	07:45	16:32 (SE02)	07:32	07:51 (SE07)	06:57	07:08
2	17:11	13 16:45 (SE02)	17:44	48 08:39 (SE06)	18:16	19:48
3	07:45	16:32 (SE02)	07:31	07:50 (SE07)	06:56	07:07
3	17:12	14 16:46 (SE02)	17:45	49 08:39 (SE06)	18:17	19:49
4	07:45	16:32 (SE02)	07:30	07:49 (SE07)	06:54	07:05
4	17:13	15 16:47 (SE02)	17:47	50 08:39 (SE06)	18:19	19:50
5	07:45	16:32 (SE02)	07:29	07:48 (SE07)	06:53	07:04
5	17:14	16 16:48 (SE02)	17:48	57 17:20 (SE01)	18:20	19:51
6	07:45	16:32 (SE02)	07:28	07:47 (SE07)	06:51	07:02
6	17:14	17 16:49 (SE02)	17:49	66 17:24 (SE01)	18:21	19:52
7	07:45	16:31 (SE02)	07:27	07:46 (SE07)	06:50	07:01
7	17:15	18 16:49 (SE02)	17:50	72 17:27 (SE01)	18:22	19:53
8	07:45	16:31 (SE02)	07:26	07:45 (SE07)	06:48	06:59
8	17:16	19 16:50 (SE02)	17:51	76 17:29 (SE01)	18:23	19:54
9	07:45	16:31 (SE02)	07:25	07:44 (SE07)	06:47	06:57
9	17:17	20 16:51 (SE02)	17:53	78 17:30 (SE01)	18:24	19:55
10	07:45	16:32 (SE02)	07:24	07:44 (SE07)	06:45	06:56
10	17:18	20 16:52 (SE02)	17:54	80 17:31 (SE01)	18:25	19:56
11	07:45	16:32 (SE02)	07:22	07:45 (SE07)	06:43	06:54
11	17:19	21 16:53 (SE02)	17:55	81 17:32 (SE01)	18:26	19:57
12	07:44	16:31 (SE02)	07:21	07:46 (SE07)	06:42	06:53
12	17:20	22 16:53 (SE02)	17:56	79 17:32 (SE01)	18:27	19:58
13	07:44	16:32 (SE02)	07:20	07:48 (SE07)	06:40	06:51
13	17:21	22 16:54 (SE02)	17:57	78 17:33 (SE01)	18:28	19:59
14	07:44	08:12 (SE06)	07:19	07:51 (SE07)	06:39	06:50
14	17:22	25 16:55 (SE02)	17:58	72 17:34 (SE01)	18:29	20:00
15	07:44	08:07 (SE06)	07:18	08:04 (SE06)	06:37	06:48
15	17:24	35 16:55 (SE02)	18:00	61 17:34 (SE01)	18:30	20:01
16	07:43	08:06 (SE06)	07:16	08:05 (SE06)	06:36	06:47
16	17:25	39 16:56 (SE02)	18:01	59 17:34 (SE01)	18:31	20:02
17	07:43	08:04 (SE06)	07:15	08:07 (SE06)	06:34	06:45
17	17:26	43 16:56 (SE02)	18:02	55 17:34 (SE01)	18:32	20:03
18	07:42	08:03 (SE06)	07:14	08:10 (SE06)	06:32	06:44
18	17:27	46 16:57 (SE02)	18:03	49 17:34 (SE01)	18:33	20:04
19	07:42	08:02 (SE06)	07:13	08:14 (SE06)	06:31	06:42
19	17:28	48 16:56 (SE02)	18:04	40 17:34 (SE01)	18:34	20:05
20	07:41	08:02 (SE06)	07:11	17:02 (SE01)	06:29	06:41
20	17:29	49 16:57 (SE02)	18:05	31 17:33 (SE01)	18:35	20:06
21	07:41	08:01 (SE06)	07:10	17:03 (SE01)	06:28	06:40
21	17:30	51 16:57 (SE02)	18:06	30 17:33 (SE01)	18:36	20:07
22	07:40	08:00 (SE06)	07:09	17:03 (SE01)	06:26	06:38
22	17:31	52 16:56 (SE02)	18:08	29 17:32 (SE01)	18:37	20:08
23	07:40	08:00 (SE06)	07:07	17:04 (SE01)	06:24	06:37
23	17:32	54 16:57 (SE02)	18:09	27 17:31 (SE01)	18:38	20:09
24	07:39	07:59 (SE06)	07:06	17:05 (SE01)	06:23	06:35
24	17:34	53 16:56 (SE02)	18:10	26 17:31 (SE01)	18:39	20:10
25	07:38	07:58 (SE06)	07:04	17:06 (SE01)	06:21	06:34
25	17:35	53 16:55 (SE02)	18:11	22 17:28 (SE01)	18:40	20:11
26	07:38	07:59 (SE06)	07:03	17:08 (SE01)	06:20	06:33
26	17:36	52 16:55 (SE02)	18:12	19 17:27 (SE01)	18:41	20:12
27	07:37	07:58 (SE06)	07:02	17:10 (SE01)	06:18	06:31
27	17:37	51 16:54 (SE02)	18:13	14 17:24 (SE01)	18:42	20:13
28	07:36	07:56 (SE07)	07:00		06:16	06:30
28	17:38	50 16:52 (SE02)	18:14		18:43	20:14
29	07:35	07:55 (SE07)			07:15	06:29
29	17:39	42 08:37 (SE06)			19:44	20:15
30	07:34	07:54 (SE07)			07:13	06:27
30	17:41	44 08:38 (SE06)			19:45	20:16
31	07:34	07:53 (SE07)			07:12	05:59
31	17:42	45 08:38 (SE06)			19:46	20:44
Potential sun hours	301		299		370	397
Total, worst case	1062		1394			445

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F23 - D10

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October		November		December		
1	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08		06:51 17:24	80	07:13 (SE07) 17:01	07:25 16:35 (SE02)	
2	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07		06:53 17:22	78	07:14 (SE07) 17:00 (SE01)	07:26 17:01	16:15 (SE02) 20 16:35 (SE02)
3	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05		06:54 17:21	75	07:15 (SE07) 16:58 (SE01)	07:27 17:00	16:15 (SE02) 20 16:35 (SE02)
4	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03		06:55 17:20	71	07:16 (SE07) 16:56 (SE01)	07:28 17:00	16:16 (SE02) 19 16:35 (SE02)
5	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02		06:56 17:19	66	07:17 (SE07) 16:54 (SE01)	07:29 17:00	16:17 (SE02) 18 16:35 (SE02)
6	06:02 20:55	06:27 20:32	06:56 19:49	07:24 19:00		06:57 17:18	55	07:18 (SE07) 16:49 (SE01)	07:30 17:00	16:18 (SE02) 17 16:35 (SE02)
7	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59		06:58 17:17	50	07:20 (SE07) 08:10 (SE06)	07:30 17:00	16:18 (SE02) 16 16:34 (SE02)
8	06:04 20:54	06:29 20:30	06:58 19:46	07:26 18:57		06:59 17:16	49	07:21 (SE07) 08:10 (SE06)	07:31 17:00	16:19 (SE02) 15 16:34 (SE02)
9	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:56		07:00 17:15	47	07:22 (SE07) 08:09 (SE06)	07:32 17:00	16:20 (SE02) 15 16:35 (SE02)
10	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54		07:02 17:14	46	07:23 (SE07) 08:09 (SE06)	07:33 17:00	16:21 (SE02) 14 16:35 (SE02)
11	06:05 20:53	06:32 20:27	07:01 19:41	07:29 18:52		07:03 17:13	45	07:25 (SE07) 08:10 (SE06)	07:34 17:00	16:22 (SE02) 13 16:35 (SE02)
12	06:06 20:53	06:33 20:25	07:02 19:39	07:30 18:51		07:04 17:12	44	07:26 (SE07) 08:10 (SE06)	07:35 17:00	16:24 (SE02) 11 16:35 (SE02)
13	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49		07:05 17:11	42	07:27 (SE07) 08:09 (SE06)	07:35 17:00	16:24 (SE02) 10 16:34 (SE02)
14	06:08 20:52	06:35 20:23	07:03 19:36	07:32 18:48	9	17:45 (SE01) 17:54 (SE01)	07:06 17:10	07:28 (SE07) 16:24 (SE02)	07:36 17:00	16:25 (SE02) 9 16:34 (SE02)
15	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46	15	17:42 (SE01) 17:57 (SE01)	07:07 17:10	07:30 (SE06) 16:26 (SE02)	07:37 17:01	16:27 (SE02) 7 16:34 (SE02)
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45	20	17:39 (SE01) 17:59 (SE01)	07:08 17:09	07:31 (SE06) 16:28 (SE02)	07:38 17:01	16:28 (SE02) 6 16:34 (SE02)
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43	24	17:37 (SE01) 18:01 (SE01)	07:10 17:08	07:32 (SE06) 16:29 (SE02)	07:38 17:01	16:29 (SE02) 4 16:33 (SE02)
18	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42	26	17:36 (SE01) 18:02 (SE01)	07:11 17:07	07:33 (SE06) 16:30 (SE02)	07:39 17:02	16:30 (SE02) 3 16:33 (SE02)
19	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41	28	17:34 (SE01) 18:02 (SE01)	07:12 17:07	07:34 (SE06) 16:31 (SE02)	07:40 17:02	16:30 (SE02)
20	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39	30	17:34 (SE01) 18:04 (SE01)	07:13 17:06	07:35 (SE06) 16:31 (SE02)	07:40 17:02	16:30 (SE02)
21	06:13 20:48	06:41 20:13	07:10 19:24	07:39 18:38	31	17:33 (SE01) 18:04 (SE01)	07:14 17:05	07:37 (SE06) 16:33 (SE02)	07:41 17:03	16:31 (SE02)
22	06:14 20:47	06:42 20:12	07:11 19:23	07:41 18:36	32	17:32 (SE01) 18:04 (SE01)	07:15 17:05	07:38 (SE06) 16:33 (SE02)	07:41 17:03	16:32 (SE02)
23	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35	43	08:43 (SE06) 18:04 (SE01)	07:16 17:04	07:39 (SE06) 16:33 (SE02)	07:42 17:04	16:33 (SE02)
24	06:15 20:45	06:44 20:09	07:13 19:20	07:43 18:34	51	08:39 (SE06) 18:04 (SE01)	07:17 17:04	07:40 (SE06) 16:34 (SE02)	07:42 17:04	16:34 (SE02)
25	06:16 20:44	06:45 20:07	07:14 19:18	07:44 17:32	57	07:36 (SE06) 17:04 (SE01)	07:18 17:03	07:42 (SE06) 16:34 (SE02)	07:43 17:05	16:34 (SE02) 2 16:36 (SE02)
26	06:17 20:44	06:46 20:06	07:15 19:16	07:45 17:31	60	07:34 (SE06) 17:04 (SE01)	07:20 17:03	07:44 (SE06) 16:34 (SE02)	07:43 17:06	16:33 (SE02) 4 16:37 (SE02)
27	06:18 20:43	06:47 20:04	07:15 19:15	07:46 17:30	61	07:34 (SE06) 17:04 (SE01)	07:21 17:02	07:46 (SE06) 16:34 (SE02)	07:43 17:06	16:33 (SE02) 6 16:39 (SE02)
28	06:19 20:42	06:48 20:03	07:16 19:13	07:47 17:28	74	07:20 (SE07) 17:04 (SE01)	07:22 17:02	07:50 (SE06) 16:34 (SE02)	07:44 17:07	16:33 (SE02) 7 16:40 (SE02)
29	06:20 20:41	06:49 20:01	07:17 19:11	07:48 17:27	79	06:48 (SE07) 17:03 (SE01)	07:23 17:01	16:13 (SE02) 16:35 (SE02)	07:44 17:08	16:32 (SE02) 9 16:41 (SE02)
30	06:21 20:40	06:49 20:00	07:18 19:10	07:49 17:26	81	06:49 (SE07) 17:02 (SE01)	07:24 17:01	16:14 (SE02) 16:35 (SE02)	07:44 17:08	16:32 (SE02) 9 16:41 (SE02)
31	06:22 20:39	06:50 19:58	07:19 19:08	07:50 17:25	81	07:14 (SE07) 17:01 (SE01)	07:25 17:01	07:45 17:09	16:33 (SE02) 10 16:43 (SE02)	
Potential sun hours	455	425	374	347		301	1493	292	285	
Total, worst case					802					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F24 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:45 17:10	15:44 (SE01) 16:21 (SE01)	07:33 17:43	08:01 (SE06) 16:24 (SE01)	06:59 18:15	07:10 19:47
2	07:45 17:11	15:44 (SE01) 16:22 (SE01)	07:32 17:44	08:01 (SE06) 16:23 (SE01)	06:57 18:16	07:08 19:48
3	07:45 17:12	15:45 (SE01) 16:22 (SE01)	07:31 17:45	08:01 (SE06) 16:20 (SE01)	06:56 18:18	07:07 19:49
4	07:45 17:13	15:45 (SE01) 16:23 (SE01)	07:30 17:47	08:02 (SE06) 08:31 (SE06)	06:54 18:19	07:05 19:50
5	07:45 17:14	15:45 (SE01) 16:24 (SE01)	07:29 17:48	08:02 (SE06) 08:31 (SE06)	06:53 18:20	07:04 19:51
6	07:45 17:14	15:45 (SE01) 16:24 (SE01)	07:28 17:49	08:02 (SE06) 08:31 (SE06)	06:51 18:21	07:02 19:52
7	07:45 17:15	15:45 (SE01) 16:24 (SE01)	07:27 17:50	08:03 (SE06) 08:31 (SE06)	06:50 18:22	07:01 19:53
8	07:45 17:16	15:45 (SE01) 16:25 (SE01)	07:26 17:51	08:03 (SE06) 08:31 (SE06)	06:48 18:23	06:59 19:54
9	07:45 17:17	15:46 (SE01) 16:26 (SE01)	07:25 17:53	08:04 (SE06) 08:30 (SE06)	06:47 18:24	06:57 19:55
10	07:45 17:18	15:46 (SE01) 16:26 (SE01)	07:24 17:54	08:05 (SE06) 08:30 (SE06)	06:45 18:25	06:56 19:56
11	07:45 17:19	15:47 (SE01) 16:27 (SE01)	07:22 17:55	08:06 (SE06) 08:29 (SE06)	06:44 18:26	06:54 19:57
12	07:44 17:20	15:46 (SE01) 16:27 (SE01)	07:21 17:56	08:07 (SE06) 08:27 (SE06)	06:42 18:27	06:53 19:58
13	07:44 17:21	15:47 (SE01) 16:28 (SE01)	07:20 17:57	08:09 (SE06) 08:25 (SE06)	06:40 18:28	06:51 19:59
14	07:44 17:22	15:48 (SE01) 16:28 (SE01)	07:19 17:58	08:12 (SE06) 08:23 (SE06)	06:39 18:29	06:50 20:00
15	07:44 17:24	15:48 (SE01) 16:28 (SE01)	07:18 18:00		06:37 18:30	06:48 20:01
16	07:43 17:25	15:48 (SE01) 16:29 (SE01)	07:16 18:01		06:36 18:31	06:47 20:02
17	07:43 17:26	15:48 (SE01) 16:29 (SE01)	07:15 18:02		06:34 18:32	06:45 20:03
18	07:42 17:27	15:49 (SE01) 16:30 (SE01)	07:14 18:03		06:32 18:33	06:44 20:04
19	07:42 17:28	15:49 (SE01) 16:29 (SE01)	07:13 18:04		06:31 18:34	06:42 20:05
20	07:41 17:29	15:50 (SE01) 16:30 (SE01)	07:11 18:05		06:29 18:35	06:41 20:06
21	07:41 17:30	08:13 (SE06) 16:30 (SE01)	07:10 18:06		06:28 18:36	06:40 20:07
22	07:40 17:31	08:08 (SE06) 16:30 (SE01)	07:09 18:08		06:26 18:37	06:38 20:08
23	07:40 17:32	08:07 (SE06) 16:30 (SE01)	07:07 18:09		06:24 18:38	06:37 20:09
24	07:39 17:34	08:06 (SE06) 16:30 (SE01)	07:06 18:10		06:23 18:39	06:35 20:10
25	07:38 17:35	08:05 (SE06) 16:29 (SE01)	07:04 18:11		06:21 18:40	06:34 20:11
26	07:38 17:36	08:05 (SE06) 16:30 (SE01)	07:03 18:12		06:20 18:41	06:33 20:12
27	07:37 17:37	08:04 (SE06) 16:29 (SE01)	07:02 18:13		06:18 18:42	06:31 20:13
28	07:36 17:38	08:03 (SE06) 16:29 (SE01)	07:00 18:14		06:16 18:43	06:30 20:14
29	07:35 17:40	08:02 (SE06) 16:28 (SE01)			07:15 19:44	06:00 20:15
30	07:35 17:41	08:02 (SE06) 16:27 (SE01)			07:13 19:45	06:27 20:16
31	07:34 17:42	08:02 (SE06) 16:26 (SE01)			07:12 19:46	05:59 20:44
Potential sun hours	301	299	370	397	445	448
Total, worst case	1393	410				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F24 - C2

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October		November		December	
1	06:00 20:56	06:22 20:38	06:51 19:57	07:19 19:08		06:51 17:24	25	07:34 (SE06) 17:01	15:29 (SE01) 16:09 (SE01)
2	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07		06:53 17:22	26	07:34 (SE06) 08:00 (SE06)	15:29 (SE01) 16:09 (SE01)
3	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05		06:54 17:21	28	07:33 (SE06) 08:01 (SE06)	15:30 (SE01) 16:10 (SE01)
4	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03		06:55 17:20	29	07:32 (SE06) 08:01 (SE06)	15:30 (SE01) 16:10 (SE01)
5	06:02 20:55	06:26 20:34	06:55 19:50	07:23 19:02		06:56 17:19	29	07:32 (SE06) 08:01 (SE06)	15:31 (SE01) 16:10 (SE01)
6	06:02 20:55	06:27 20:33	06:56 19:49	07:24 19:00		06:57 17:18	29	07:32 (SE06) 08:01 (SE06)	15:31 (SE01) 16:10 (SE01)
7	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59		06:58 17:17	35	07:32 (SE06) 15:47 (SE01)	15:31 (SE01) 16:10 (SE01)
8	06:04 20:54	06:29 20:30	06:58 19:46	07:26 18:57		06:59 17:16	44	07:32 (SE06) 15:51 (SE01)	15:32 (SE01) 16:10 (SE01)
9	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:56		07:01 17:15	50	07:32 (SE06) 15:54 (SE01)	15:33 (SE01) 16:10 (SE01)
10	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54		07:02 17:14	53	07:32 (SE06) 15:55 (SE01)	15:33 (SE01) 16:11 (SE01)
11	06:05 20:53	06:32 20:27	07:01 19:41	07:29 18:52		07:03 17:13	54	07:34 (SE06) 15:58 (SE01)	15:34 (SE01) 16:11 (SE01)
12	06:06 20:53	06:33 20:25	07:02 19:39	07:30 18:51		07:04 17:12	57	07:34 (SE06) 15:59 (SE01)	15:35 (SE01) 16:12 (SE01)
13	06:07 20:52	06:34 20:24	07:02 19:38	07:31 18:49		07:05 17:11	58	07:34 (SE06) 16:00 (SE01)	15:35 (SE01) 16:11 (SE01)
14	06:08 20:52	06:35 20:23	07:03 19:36	07:32 18:48		07:06 17:10	59	07:35 (SE06) 16:01 (SE01)	09:20 (SE04) 16:12 (SE01)
15	06:08 20:51	06:35 20:21	07:04 19:34	07:33 18:46		07:07 17:10	58	07:36 (SE06) 16:01 (SE01)	09:19 (SE04) 16:12 (SE01)
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 18:45		07:08 17:09	58	07:38 (SE06) 16:03 (SE01)	09:19 (SE04) 16:13 (SE01)
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 18:43		07:10 17:08	56	07:39 (SE06) 16:03 (SE01)	09:18 (SE04) 16:13 (SE01)
18	06:11 20:50	06:38 20:17	07:07 19:29	07:36 18:42		07:11 17:07	56	07:40 (SE06) 16:04 (SE01)	09:19 (SE04) 16:14 (SE01)
19	06:11 20:49	06:39 20:16	07:08 19:28	07:37 18:41		07:12 17:07	53	07:41 (SE06) 16:04 (SE01)	09:18 (SE04) 16:13 (SE01)
20	06:12 20:48	06:40 20:15	07:09 19:26	07:38 18:39		07:13 17:06	50	07:43 (SE06) 16:05 (SE01)	09:19 (SE04) 16:14 (SE01)
21	06:13 20:48	06:41 20:13	07:10 19:24	07:39 18:38		07:14 17:05	42	07:49 (SE06) 16:06 (SE01)	09:19 (SE04) 16:14 (SE01)
22	06:14 20:47	06:42 20:12	07:11 19:23	07:41 18:36		07:15 17:05	40	15:26 (SE01) 16:06 (SE01)	09:20 (SE04) 16:15 (SE01)
23	06:15 20:46	06:43 20:10	07:12 19:21	07:42 18:35		07:16 17:04	40	15:26 (SE01) 16:06 (SE01)	09:20 (SE04) 16:15 (SE01)
24	06:15 20:45	06:44 20:09	07:13 19:20	07:43 18:34		07:17 17:04	41	15:26 (SE01) 16:07 (SE01)	09:21 (SE04) 16:16 (SE01)
25	06:16 20:44	06:45 20:07	07:14 19:18	07:44 17:32		07:18 17:03	41	15:26 (SE01) 16:07 (SE01)	09:22 (SE04) 16:17 (SE01)
26	06:17 20:44	06:46 20:06	07:15 19:16	07:45 17:31		07:20 17:03	41	15:26 (SE01) 16:07 (SE01)	09:22 (SE04) 16:17 (SE01)
27	06:18 20:43	06:47 20:04	07:15 19:15	07:46 17:30	07:46 (SE06)	17:03	41	15:27 (SE01) 16:07 (SE01)	09:24 (SE04) 16:18 (SE01)
28	06:19 20:42	06:48 20:03	07:16 19:13	07:47 17:28	07:49 (SE06) 07:53 (SE06)	17:02	40	15:27 (SE01) 16:08 (SE01)	09:25 (SE04) 16:18 (SE01)
29	06:20 20:41	06:49 20:01	07:17 19:11	07:48 17:27	07:38 (SE06) 07:55 (SE06)	17:02	41	15:28 (SE01) 16:09 (SE01)	09:26 (SE04) 16:19 (SE01)
30	06:21 20:40	06:49 20:00	07:18 19:10	07:49 17:26	07:36 (SE06) 07:57 (SE06)	17:02	41	15:28 (SE01) 16:09 (SE01)	09:29 (SE04) 16:19 (SE01)
31	06:22 20:39	06:50 19:58	07:19 19:08	07:50 17:25	07:35 (SE06) 07:58 (SE06)	17:01	41	16:09 (SE01) 17:08	15:44 (SE01) 16:21 (SE01)
Potential sun hours	455	425	374	347		301	1315	292	1331
Total, worst case				76					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F25 - SEMINATIVO - PASCOLO ARB
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March		April		May	June	
1	07:45	07:33	06:59		07:10		08:13 (SE01)	06:26	05:59
	17:10	17:43	18:15		19:47	53	09:06 (SE01)	20:17	20:45
2	07:45	07:32	06:57		07:08		08:14 (SE01)	06:25	05:59
	17:11	17:44	18:16		19:48	52	09:06 (SE01)	20:18	20:46
3	07:45	07:31	06:56		07:07		08:14 (SE01)	06:24	05:58
	17:12	17:46	18:18		19:49	50	09:04 (SE01)	20:19	20:47
4	07:45	07:30	06:54		07:05		08:14 (SE01)	06:23	05:58
	17:13	17:47	18:19		19:50	49	09:03 (SE01)	20:20	20:47
5	07:45	07:29	06:53		07:04		08:15 (SE01)	06:21	05:58
	17:14	17:48	18:20		19:51	47	09:02 (SE01)	20:21	20:48
6	07:45	07:28	06:51		07:02		08:15 (SE01)	06:20	05:57
	17:15	17:49	18:21		19:52	45	09:00 (SE01)	20:22	20:48
7	07:45	07:27	06:50		07:47 (SE01)		08:17 (SE01)	06:19	05:57
	17:15	17:50	18:22	2	07:49 (SE01)	42	08:59 (SE01)	20:23	20:49
8	07:45	07:26	06:48		07:39 (SE01)		08:17 (SE01)	06:18	05:57
	17:16	17:51	18:23	19	07:58 (SE01)	39	08:56 (SE01)	20:24	20:50
9	07:45	07:25	06:47		07:34 (SE01)		08:19 (SE01)	06:17	05:57
	17:17	17:53	18:24	27	08:01 (SE01)	36	08:55 (SE01)	20:25	20:50
10	07:45	07:24	06:45		07:32 (SE01)		08:20 (SE01)	06:16	05:56
	17:18	17:54	18:25	32	08:04 (SE01)	32	08:52 (SE01)	20:26	20:51
11	07:45	07:23	06:44		07:29 (SE01)		08:23 (SE01)	06:15	05:56
	17:19	17:55	18:26	36	08:05 (SE01)	27	08:50 (SE01)	20:27	20:51
12	07:44	07:21	06:42		07:27 (SE01)		08:25 (SE01)	06:14	05:56
	17:20	17:56	18:27	40	08:07 (SE01)	21	08:46 (SE01)	20:28	20:52
13	07:44	07:20	06:40		07:25 (SE01)		08:29 (SE01)	06:13	05:56
	17:21	17:57	18:28	43	08:08 (SE01)	13	08:42 (SE01)	20:29	20:52
14	07:44	07:19	06:39		07:23 (SE01)			06:12	05:56
	17:23	17:59	18:29	46	08:09 (SE01)			20:30	20:53
15	07:44	07:18	06:37		07:22 (SE01)			06:11	05:56
	17:24	18:00	18:30	49	08:11 (SE01)			20:31	20:53
16	07:43	07:17	06:36		07:21 (SE01)			06:10	05:56
	17:25	18:01	18:31	50	08:11 (SE01)			20:32	20:53
17	07:43	07:15	06:34		07:19 (SE01)			06:09	05:56
	17:26	18:02	18:32	52	08:11 (SE01)			20:33	20:54
18	07:42	07:14	06:33		07:19 (SE01)			06:08	05:56
	17:27	18:03	18:33	53	08:12 (SE01)			20:34	20:54
19	07:42	07:13	06:31		07:17 (SE01)			06:07	05:56
	17:28	18:04	18:34	55	08:12 (SE01)			20:34	20:54
20	07:41	07:11	06:29		07:17 (SE01)			06:07	05:56
	17:29	18:05	18:35	56	08:13 (SE01)			20:35	20:55
21	07:41	07:10	06:28		07:16 (SE01)			06:06	05:57
	17:30	18:07	18:36	56	08:12 (SE01)			20:36	20:55
22	07:40	07:09	06:26		07:15 (SE01)			06:05	05:57
	17:31	18:08	18:37	57	08:12 (SE01)			20:37	20:55
23	07:40	07:07	06:24		07:15 (SE01)			06:04	05:57
	17:33	18:09	18:38	57	08:12 (SE01)			20:38	20:55
24	07:39	07:06	06:23		07:14 (SE01)			06:04	05:57
	17:34	18:10	18:39	58	08:12 (SE01)			20:39	20:56
25	07:38	07:04	06:21		07:13 (SE01)			06:03	05:58
	17:35	18:11	18:40	58	08:11 (SE01)			20:40	20:56
26	07:38	07:03	06:20		07:13 (SE01)			06:02	05:58
	17:36	18:12	18:41	58	08:11 (SE01)			20:40	20:56
27	07:37	07:02	06:18		07:13 (SE01)			06:02	05:58
	17:37	18:13	18:42	57	08:10 (SE01)			20:41	20:56
28	07:36	07:00	06:16		07:13 (SE01)			06:01	05:59
	17:38	18:14	18:43	57	08:10 (SE01)			20:42	20:56
29	07:35		07:15		08:13 (SE01)			06:01	05:59
	17:40		19:44	56	09:09 (SE01)			20:43	20:56
30	07:35		07:13		08:12 (SE01)			06:00	05:59
	17:41		19:45	56	09:08 (SE01)			20:44	20:56
31	07:34		07:12		08:13 (SE01)			05:59	
	17:42		19:46	55	09:08 (SE01)			20:44	
Potential sun hours	301	299	370		397		445	448	
Total, worst case			1185		506				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F25 - SEMINATIVO - PASCOLO ARB

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	06:00 20:56	06:23 20:38	06:51 19:57	08:21 (SE01) 19:08	07:19 19:08	08:05 (SE01) 17:24	06:52 17:01
2	06:00 20:56	06:23 20:37	06:52 19:55	08:19 (SE01) 19:07	07:20 19:07	08:07 (SE01) 17:22	06:53 17:01
3	06:01 20:56	06:24 20:36	06:53 19:54	08:16 (SE01) 19:05	07:21 19:05	08:09 (SE01) 17:21	06:54 17:00
4	06:01 20:55	06:25 20:35	06:54 19:52	08:14 (SE01) 19:03	07:22 19:03	08:11 (SE01) 17:20	06:55 17:00
5	06:02 20:55	06:26 20:34	06:55 19:51	08:13 (SE01) 19:02	07:23 19:02	08:13 (SE01) 17:19	06:56 17:00
6	06:02 20:55	06:27 20:33	06:56 19:49	08:11 (SE01) 19:00	07:24 19:00	08:18 (SE01) 17:18	06:57 17:00
7	06:03 20:55	06:28 20:31	06:57 19:47	08:10 (SE01) 18:59	07:25 18:59	08:31 (SE01) 17:17	06:58 17:00
8	06:04 20:54	06:29 20:30	06:58 19:46	08:09 (SE01) 18:57	07:26 18:57	08:08 (SE01) 17:16	06:59 17:00
9	06:04 20:54	06:30 20:29	06:59 19:44	08:08 (SE01) 18:56	07:27 18:56	08:08 (SE01) 17:15	07:01 17:00
10	06:05 20:54	06:31 20:28	07:00 19:43	08:07 (SE01) 18:54	07:28 18:54	08:07 (SE01) 17:14	07:02 17:00
11	06:06 20:53	06:32 20:27	07:01 19:41	08:06 (SE01) 18:53	07:29 18:53	08:06 (SE01) 17:13	07:03 17:00
12	06:06 20:53	06:33 20:25	07:02 19:39	08:04 (SE01) 18:51	07:30 18:51	08:04 (SE01) 17:12	07:04 17:00
13	06:07 20:52	06:34 20:24	07:03 19:38	08:04 (SE01) 18:49	07:31 18:49	08:04 (SE01) 17:11	07:05 17:00
14	06:08 20:52	06:35 20:23	07:03 19:36	08:03 (SE01) 18:48	07:32 18:48	08:03 (SE01) 17:10	07:06 17:01
15	06:08 20:51	06:36 20:21	07:04 19:34	08:03 (SE01) 18:47	07:33 18:47	08:03 (SE01) 17:10	07:07 17:01
16	06:09 20:51	06:36 20:20	07:05 19:33	08:02 (SE01) 18:45	07:34 18:45	08:02 (SE01) 17:09	07:09 17:01
17	06:10 20:50	06:37 20:19	07:06 19:31	08:02 (SE01) 18:44	07:35 18:44	08:02 (SE01) 17:08	07:10 17:01
18	06:11 20:50	06:38 20:17	07:07 19:29	08:01 (SE01) 18:42	07:36 18:42	08:01 (SE01) 17:07	07:11 17:02
19	06:11 20:49	06:39 20:16	07:08 19:28	08:01 (SE01) 18:41	07:37 18:41	08:01 (SE01) 17:07	07:12 17:02
20	06:12 20:48	06:40 20:15	07:09 19:26	08:01 (SE01) 18:39	07:38 18:39	08:01 (SE01) 17:06	07:13 17:03
21	06:13 20:48	06:41 20:13	07:10 19:25	08:01 (SE01) 18:38	07:40 18:38	08:01 (SE01) 17:05	07:14 17:03
22	06:14 20:47	06:42 20:12	07:11 19:23	08:00 (SE01) 18:36	07:41 18:36	08:00 (SE01) 17:05	07:15 17:03
23	06:15 20:46	06:43 20:10	07:12 19:21	08:00 (SE01) 18:35	07:42 18:35	08:00 (SE01) 17:04	07:16 17:04
24	06:16 20:45	06:44 20:09	07:13 19:20	08:01 (SE01) 18:34	07:43 18:34	08:01 (SE01) 17:04	07:17 17:05
25	06:16 20:44	06:45 20:07	07:14 19:18	08:01 (SE01) 18:32	07:44 18:32	08:01 (SE01) 17:03	07:19 17:05
26	06:17 20:44	06:46 20:06	07:15 19:16	08:01 (SE01) 18:31	07:45 18:31	08:01 (SE01) 17:03	07:20 17:06
27	06:18 20:43	06:47 20:04	07:16 19:15	08:02 (SE01) 18:30	07:46 18:30	08:02 (SE01) 17:02	07:21 17:06
28	06:19 20:42	06:48 20:03	07:17 19:13	08:03 (SE01) 18:29	07:47 18:29	08:03 (SE01) 17:02	07:22 17:07
29	06:20 20:41	06:49 20:01	07:17 19:11	08:03 (SE01) 18:27	07:48 18:27	08:03 (SE01) 17:01	07:23 17:08
30	06:21 20:40	06:50 20:00	07:18 19:10	08:04 (SE01) 18:26	07:49 18:26	08:04 (SE01) 17:01	07:24 17:08
31	06:22 20:39	06:50 19:58	08:28 (SE01) 08:43 (SE01) 08:24 (SE01) 08:46 (SE01)	07:18 19:10	08:04 (SE01) 17:26	06:50 17:25	07:44 17:09
Potential sun hours	455	425	374	347	347	301	292
Total, worst case		37	1505	179			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F26 - VIGNETO
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:45 17:10	07:33 17:43	06:59 18:15	07:10 19:47	06:26 20:17	05:59 20:45	06:00 20:56	06:23 20:38	06:51 19:57	07:19 19:08	06:52 17:24	07:25 17:01
2	07:45 17:11	07:32 17:44	06:57 18:16	07:08 19:48	06:25 20:18	05:59 20:46	06:00 20:56	06:23 20:37	06:52 19:55	07:20 19:07	06:53 17:22	07:26 17:01
3	07:45 17:12	07:31 17:46	06:56 18:18	07:07 19:49	06:24 20:19	05:58 20:46	06:01 20:55	06:24 20:36	06:53 19:54	07:21 19:05	06:54 17:21	07:27 17:00
4	07:45 17:13	07:30 17:47	06:54 18:19	07:05 19:50	06:23 20:20	05:58 20:47	06:01 20:55	06:25 20:35	06:54 19:52	07:22 19:03	06:55 17:20	07:28 17:00
5	07:45 17:14	07:29 17:48	06:53 18:20	07:04 19:51	06:21 20:21	05:58 20:48	06:02 20:55	06:26 20:34	06:55 19:51	07:23 19:02	06:56 17:19	07:29 17:00
6	07:45 17:15	07:28 17:49	06:51 18:21	07:02 19:52	06:20 20:22	05:57 20:48	06:02 20:55	06:27 20:33	06:56 19:49	07:24 19:00	06:57 17:18	07:30 17:00
7	07:45 17:16	07:27 17:50	06:50 18:22	07:01 19:53	06:19 20:23	05:57 20:49	06:03 20:55	06:28 20:31	06:57 19:47	07:25 18:59	06:58 17:17	07:31 17:00
8	07:45 17:16	07:26 17:51	06:48 18:23	06:59 19:54	06:18 20:24	05:57 20:50	06:04 20:54	06:29 20:30	06:58 19:46	07:26 18:57	06:59 17:16	07:31 17:00
9	07:45 17:17	07:25 17:53	06:47 18:24	06:58 19:55	06:17 20:25	05:57 20:50	06:04 20:54	06:30 20:29	06:59 19:44	07:27 18:56	07:01 17:15	07:32 17:00
10	07:45 17:18	07:24 17:54	06:45 18:25	06:56 19:56	06:16 20:26	05:56 20:51	06:05 20:54	06:31 20:28	07:00 19:42	07:28 18:54	07:02 17:14	07:33 17:00
11	07:45 17:19	07:23 17:55	06:44 18:26	06:54 19:57	06:15 20:27	05:56 20:51	06:06 20:53	06:32 20:27	07:01 19:41	07:29 18:53	07:03 17:13	07:34 17:00
12	07:44 17:20	07:21 17:56	06:42 18:27	06:53 19:58	06:14 20:28	05:56 20:52	06:06 20:53	06:33 20:25	07:02 19:39	07:30 18:51	07:04 17:12	07:35 17:00
13	07:44 17:22	07:20 17:57	06:40 18:28	06:51 19:59	7 07:15 (SE05) 06:13	05:56 20:52	06:07 20:52	06:34 20:24	07:03 19:38	07:31 18:49	07:05 17:11	07:36 17:00
14	07:44 17:23	07:19 17:59	06:39 18:29	06:50 20:00	12 07:12 (SE05) 06:12	05:56 20:53	06:08 20:52	06:35 20:23	07:03 19:36	07:32 18:48	07:06 17:10	07:36 17:01
15	07:44 17:24	07:18 18:00	06:37 18:30	06:48 20:01	15 07:10 (SE05) 06:11	05:56 20:53	06:08 20:51	06:36 20:21	07:04 19:34	07:33 18:47	07:07 17:10	07:37 17:01
16	07:43 17:25	07:17 18:01	06:36 18:31	06:47 20:02	18 07:08 (SE05) 06:10	05:56 20:53	06:09 20:51	06:36 20:20	7 07:20 (SE05) 07:05	07:34 18:45	07:08 17:09	07:38 17:01
17	07:43 17:26	07:15 18:02	06:34 18:32	06:45 20:03	18 07:08 (SE05) 06:09	05:56 20:54	06:10 20:50	06:37 20:19	10 07:16 (SE05) 07:06	07:35 18:44	07:10 17:08	07:38 17:01
18	07:42 17:27	07:14 18:03	06:32 18:33	06:44 20:04	19 07:07 (SE05) 06:08	05:56 20:54	06:11 20:50	06:38 20:17	14 07:14 (SE05) 07:07	07:36 18:42	07:11 17:07	07:39 17:02
19	07:42 17:28	07:13 18:04	06:31 18:34	06:43 20:05	19 07:07 (SE05) 06:07	05:56 20:54	06:11 20:49	06:39 20:16	16 07:13 (SE05) 07:08	07:37 18:41	07:12 17:07	07:40 17:02
20	07:41 17:29	07:11 18:05	06:29 18:35	06:41 20:06	20 07:06 (SE05) 06:07	05:56 20:55	06:12 20:48	06:40 20:15	18 07:12 (SE05) 07:09	07:38 18:39	07:13 17:06	07:40 17:03
21	07:41 17:30	07:10 18:07	06:28 18:36	06:40 20:07	20 07:06 (SE05) 06:06	05:57 20:55	06:13 20:48	06:41 20:13	19 07:11 (SE05) 07:10	07:39 18:38	07:14 17:05	07:41 17:03
22	07:40 17:31	07:09 18:08	06:26 18:37	06:38 20:08	18 07:07 (SE05) 06:05	05:57 20:55	06:14 20:47	06:42 20:12	19 07:11 (SE05) 07:11	07:40 18:36	07:15 17:05	07:41 17:03
23	07:40 17:33	07:07 18:09	06:24 18:38	06:37 20:09	18 07:06 (SE05) 06:04	05:57 20:55	06:15 20:46	06:43 20:10	19 07:11 (SE05) 07:12	07:41 18:35	07:16 17:04	07:42 17:04
24	07:39 17:34	07:06 18:10	06:23 18:39	06:35 20:10	15 07:23 (SE05) 06:04	05:57 20:56	06:16 20:45	06:44 20:09	19 07:11 (SE05) 07:13	07:43 18:34	07:17 17:04	07:42 17:05
25	07:38 17:35	07:04 18:11	06:21 18:40	06:34 20:11	13 07:22 (SE05) 06:03	05:58 20:56	06:16 20:44	06:45 20:07	19 07:10 (SE05) 07:14	07:44 17:32	07:18 17:03	07:43 17:05
26	07:38 17:36	07:03 18:12	06:20 18:41	06:33 20:12	9 07:19 (SE05) 06:02	05:58 20:56	06:17 20:44	06:46 20:06	18 07:10 (SE05) 07:15	07:45 17:31	07:19 17:03	07:43 17:06
27	07:37 17:37	07:02 18:13	06:18 18:42	06:31 20:13	06:02 20:41	05:58 20:56	06:18 20:43	06:47 20:04	17 07:10 (SE05) 07:15	07:46 17:30	07:21 17:02	07:43 17:06
28	07:36 17:38	07:00 18:14	06:16 18:43	06:30 20:14	06:01 20:42	05:59 20:56	06:19 20:42	06:48 20:03	15 07:11 (SE05) 07:17	07:47 17:29	07:22 17:02	07:44 17:07
29	07:35 17:40	07:00 19:44	06:15 20:15	06:29 20:15	06:01 20:43	05:59 20:56	06:20 20:41	06:49 20:01	11 07:24 (SE05) 07:19	07:48 17:27	07:23 17:02	07:44 17:08
30	07:35 17:41	07:00 19:45	06:14 20:16	06:28 20:16	06:00 20:44	05:59 20:56	06:21 20:40	06:50 20:00	6 07:21 (SE05) 07:19	07:49 17:26	07:24 17:01	07:44 17:08
31	07:34 17:42	07:00 19:46	06:13 20:16	06:27 20:16	06:00 20:44	05:58 20:56	06:22 20:39	06:50 19:58	07:21 (SE05) 07:19	07:50 17:25	07:25 17:01	07:45 17:09
Potential sun hours	301	299	370	397	445	448	455	425	374	347	301	292
Total, worst case				221		40		222				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F27 - SEMINATIVO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:45 17:10	07:33 17:43	06:59 18:15	07:10 19:47	19:04 (SE05) 20:17	05:59 20:45
2	07:45 17:11	07:32 17:44	06:57 18:16	07:08 19:48	19:04 (SE05) 20:18	05:58 20:46
3	07:45 17:12	07:31 17:45	06:56 18:17	07:07 19:49	19:05 (SE05) 20:19	05:58 20:46
4	07:45 17:13	07:30 17:47	06:54 18:18	07:05 19:50	19:05 (SE05) 20:20	05:58 20:47
5	07:45 17:13	07:29 17:48	06:53 18:20	07:04 19:51	19:07 (SE05) 20:21	05:57 20:48
6	07:45 17:14	07:28 17:49	06:51 18:21	07:02 19:52	19:09 (SE05) 20:22	05:57 20:48
7	07:45 17:15	07:27 17:50	06:50 18:22	07:00 19:53	06:19 20:23	19:56 (SE06) 20:49
8	07:45 17:16	07:26 17:51	06:48 18:23	06:59 19:54	06:18 20:24	19:52 (SE06) 20:49
9	07:45 17:17	07:25 17:52	06:46 18:24	06:57 19:55	06:17 20:25	19:51 (SE06) 20:50
10	07:45 17:18	07:23 17:54	06:45 18:25	06:56 19:56	06:16 20:26	19:49 (SE06) 20:51
11	07:44 17:19	07:22 17:55	06:43 18:26	06:54 19:57	06:15 20:27	19:48 (SE06) 20:51
12	07:44 17:20	07:21 17:56	06:42 18:27	06:53 19:58	06:14 20:28	19:47 (SE06) 20:52
13	07:44 17:21	07:20 17:57	06:40 18:28	06:51 19:59	06:13 20:29	19:46 (SE06) 20:52
14	07:44 17:22	07:19 17:58	06:39 18:29	06:50 20:00	06:12 20:30	19:45 (SE07) 20:52
15	07:43 17:23	07:18 17:59	06:37 18:30	06:48 20:01	06:11 20:31	19:42 (SE07) 20:53
16	07:43 17:25	07:16 18:01	06:35 18:31	06:47 20:02	06:10 20:31	19:40 (SE07) 20:53
17	07:43 17:26	07:15 18:02	06:34 18:32	06:45 20:03	06:09 20:32	19:38 (SE07) 20:54
18	07:42 17:27	07:14 18:03	06:32 18:33	06:44 20:04	06:08 20:33	19:37 (SE07) 20:54
19	07:42 17:28	07:12 18:04	06:31 18:34	06:42 20:05	06:07 20:34	19:35 (SE07) 20:54
20	07:41 17:29	07:11 18:05	06:29 18:35	06:41 20:06	06:06 20:35	19:34 (SE07) 20:55
21	07:41 17:30	07:10 18:06	06:28 18:36	06:39 20:07	06:06 20:36	19:34 (SE07) 20:55
22	07:40 17:31	07:08 18:07	06:26 18:37	06:38 20:08	06:05 20:37	19:33 (SE07) 20:55
23	07:39 17:32	07:07 18:09	06:24 18:38	06:37 20:09	06:04 20:38	19:32 (SE07) 20:55
24	07:39 17:34	07:06 18:10	06:23 18:39	06:35 20:10	06:03 20:39	19:32 (SE07) 20:55
25	07:38 17:35	07:04 18:11	06:21 18:40	18:12 (SE05) 06:34	06:03 20:39	19:31 (SE07) 20:55
26	07:37 17:36	07:03 18:12	06:19 18:41	18:10 (SE05) 06:33	06:02 20:40	19:31 (SE07) 20:56
27	07:37 17:37	07:01 18:13	06:18 18:42	18:07 (SE05) 06:31	06:01 20:41	19:31 (SE07) 20:56
28	07:36 17:38	07:00 18:14	06:16 18:43	18:06 (SE05) 06:30	06:01 20:42	19:30 (SE07) 20:56
29	07:35 17:39	07:15 19:44	07:15 19:44	19:05 (SE05) 06:29	06:00 20:43	19:30 (SE07) 20:56
30	07:34 17:41	07:13 19:45	07:13 19:45	19:04 (SE05) 06:27	06:00 20:43	19:30 (SE07) 20:56
31	07:34 17:42	07:11 19:46	07:11 19:46	19:04 (SE05) 06:27	05:59 20:44	19:30 (SE07) 20:56
Potential sun hours	301	299	370	397	445	448
Total, worst case			107	87	753	1424

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F27 - SEMINATIVO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December					
1	06:00	19:35 (SE07)	06:22	19:58 (SE06)	06:51	07:19	06:51	07:25			
	20:56	48 20:23 (SE07)	20:38	17 20:15 (SE06)	19:57	19:08	17:23	17:01			
2	06:00	19:35 (SE07)	06:23	19:59 (SE06)	06:52	07:20	06:52	07:26			
	20:55	47 20:22 (SE07)	20:37	15 20:14 (SE06)	19:55	19:06	17:22	17:00			
3	06:01	19:35 (SE07)	06:24	20:00 (SE06)	06:53	07:21	06:54	07:27			
	20:55	48 20:23 (SE07)	20:36	13 20:13 (SE06)	19:53	19:05	17:21	17:00			
4	06:01	19:35 (SE07)	06:25	20:02 (SE06)	06:54	07:22	06:55	07:28			
	20:55	48 20:23 (SE07)	20:35	10 20:12 (SE06)	19:52	19:03	17:20	17:00			
5	06:02	19:36 (SE07)	06:26	20:03 (SE06)	06:55	07:23	06:56	07:28			
	20:55	47 20:23 (SE07)	20:33	7 20:10 (SE06)	19:50	19:02	17:19	17:00			
6	06:02	19:36 (SE07)	06:27	06:56	19:05 (SE05)	07:24	06:57	07:29			
	20:55	47 20:23 (SE07)	20:32	19:49	6 19:11 (SE05)	19:00	17:18	17:00			
7	06:03	19:36 (SE07)	06:28	06:57	19:02 (SE05)	07:25	06:58	07:30			
	20:54	47 20:23 (SE07)	20:31	19:47	12 19:14 (SE05)	18:59	17:17	17:00			
8	06:03	19:36 (SE07)	06:29	06:58	19:00 (SE05)	07:26	06:59	07:31			
	20:54	47 20:23 (SE07)	20:30	19:46	15 19:15 (SE05)	18:57	17:16	17:00			
9	06:04	19:37 (SE07)	06:30	06:59	18:59 (SE05)	07:27	07:00	07:32			
	20:54	46 20:23 (SE07)	20:29	19:44	17 19:16 (SE05)	18:55	17:15	17:00			
10	06:05	19:37 (SE07)	06:31	07:00	18:57 (SE05)	07:28	07:01	07:33			
	20:53	46 20:23 (SE07)	20:28	19:42	18 19:15 (SE05)	18:54	17:14	17:00			
11	06:05	19:37 (SE07)	06:32	07:00	18:56 (SE05)	07:29	07:03	07:34			
	20:53	46 20:23 (SE07)	20:26	19:41	20 19:16 (SE05)	18:52	17:13	17:00			
12	06:06	19:38 (SE07)	06:33	07:01	18:56 (SE05)	07:30	07:04	07:35			
	20:53	45 20:23 (SE07)	20:25	19:39	19 19:15 (SE05)	18:51	17:12	17:00			
13	06:07	19:39 (SE07)	06:33	07:02	18:55 (SE05)	07:31	07:05	07:35			
	20:52	44 20:23 (SE07)	20:24	19:37	20 19:15 (SE05)	18:49	17:11	17:00			
14	06:07	19:38 (SE07)	06:34	07:03	18:56 (SE05)	07:32	07:06	07:36			
	20:52	44 20:22 (SE07)	20:23	19:36	18 19:14 (SE05)	18:48	17:10	17:00			
15	06:08	19:39 (SE07)	06:35	07:04	18:56 (SE05)	07:33	07:07	07:37			
	20:51	43 20:22 (SE07)	20:21	19:34	16 19:12 (SE05)	18:46	17:09	17:01			
16	06:09	19:40 (SE07)	06:36	07:05	18:56 (SE05)	07:34	07:08	07:38			
	20:51	42 20:22 (SE07)	20:20	19:33	15 19:11 (SE05)	18:45	17:09	17:01			
17	06:10	19:41 (SE07)	06:37	07:06	18:58 (SE05)	07:35	07:09	07:38			
	20:50	41 20:22 (SE07)	20:19	19:31	11 19:09 (SE05)	18:43	17:08	17:01			
18	06:10	19:40 (SE07)	06:38	07:07	19:00 (SE05)	07:36	07:11	07:39			
	20:49	41 20:21 (SE07)	20:17	19:29	8 19:08 (SE05)	18:42	17:07	17:02			
19	06:11	19:41 (SE07)	06:39	07:08	07:37	07:12	07:39	07:39			
	20:49	40 20:21 (SE07)	20:16	19:28	18:40	17:06	17:02	17:02			
20	06:12	19:42 (SE07)	06:40	07:09	07:38	07:13	07:40	07:40			
	20:48	38 20:20 (SE06)	20:14	19:26	18:39	17:06	17:02	17:02			
21	06:13	19:43 (SE07)	06:41	07:10	07:39	07:14	07:41	07:41			
	20:47	38 20:21 (SE06)	20:13	19:24	18:38	17:05	17:03	17:03			
22	06:14	19:43 (SE07)	06:42	07:11	07:40	07:15	07:41	07:41			
	20:47	37 20:20 (SE06)	20:12	19:23	18:36	17:05	17:03	17:03			
23	06:15	19:44 (SE07)	06:43	07:12	07:41	07:16	07:42	07:42			
	20:46	37 20:21 (SE06)	20:10	19:21	18:35	17:04	17:04	17:04			
24	06:15	19:45 (SE07)	06:44	07:13	07:43	07:17	07:42	07:42			
	20:45	36 20:21 (SE06)	20:09	19:19	18:34	17:03	17:04	17:04			
25	06:16	19:47 (SE07)	06:45	07:13	06:44	07:18	07:43	07:43			
	20:44	34 20:21 (SE06)	20:07	19:18	17:32	17:03	17:05	17:05			
26	06:17	19:48 (SE07)	06:46	07:14	06:45	07:19	07:43	07:43			
	20:43	32 20:20 (SE06)	20:06	19:16	17:31	17:02	17:06	17:06			
27	06:18	19:50 (SE07)	06:47	07:15	06:46	07:20	07:43	07:43			
	20:43	30 20:20 (SE06)	20:04	19:15	17:30	17:02	17:06	17:06			
28	06:19	19:51 (SE07)	06:48	07:16	06:47	07:21	07:44	07:44			
	20:42	27 20:18 (SE06)	20:03	19:13	17:28	17:02	17:07	17:07			
29	06:20	19:53 (SE07)	06:48	07:17	06:48	07:23	07:44	07:44			
	20:41	24 20:17 (SE06)	20:01	19:11	17:27	17:01	17:08	17:08			
30	06:21	19:57 (SE06)	06:49	07:18	06:49	07:24	07:44	07:44			
	20:40	19 20:16 (SE06)	20:00	19:10	17:26	17:01	17:08	17:08			
31	06:21	19:57 (SE06)	06:50		06:50		07:44	07:44			
	20:39	19 20:16 (SE06)	19:58		17:25		17:09	17:09			
Potential sun hours	455		425		374		347		301		292
Total, worst case		1228		62		195					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F28 - SEMINATIVO IRR- SEMINATIVO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June			
1	07:45	15:42 (SE05)	07:33	15:50 (SE05)	06:59	07:17 (SE07)	07:10	08:06 (SE07)	06:26	05:59				
	17:10	49	16:31 (SE05)	17:43	54	16:44 (SE05)	18:15	34	07:51 (SE07)	19:47	89	08:08 (SE07)	06:25	05:59
2	07:45	15:42 (SE05)	07:32	15:50 (SE05)	06:57	07:16 (SE07)	07:08	08:08 (SE07)	06:25	05:59				
	17:11	49	16:31 (SE05)	17:44	53	16:43 (SE05)	18:16	37	07:53 (SE07)	19:48	85	19:17 (SE04)	20:18	20:46
3	07:45	15:43 (SE05)	07:31	15:51 (SE05)	06:56	07:14 (SE07)	07:07	08:11 (SE07)	06:24	05:58				
	17:12	49	16:32 (SE05)	17:45	52	16:43 (SE05)	18:17	40	07:54 (SE07)	19:49	79	19:17 (SE04)	20:19	20:46
4	07:45	15:43 (SE05)	07:30	15:52 (SE05)	06:54	07:13 (SE07)	07:05	08:16 (SE07)	06:22	05:58				
	17:13	50	16:33 (SE05)	17:47	51	16:43 (SE05)	18:19	43	07:56 (SE07)	19:50	69	19:17 (SE04)	20:20	20:47
5	07:45	15:43 (SE05)	07:29	15:53 (SE05)	06:53	07:11 (SE07)	07:04	18:19 (SE04)	06:21	05:57				
	17:14	51	16:34 (SE05)	17:48	49	16:42 (SE05)	18:20	45	07:56 (SE07)	19:51	58	19:17 (SE04)	20:21	20:48
6	07:45	15:43 (SE05)	07:28	15:54 (SE05)	06:51	07:10 (SE07)	07:02	18:18 (SE04)	06:20	05:57				
	17:14	51	16:34 (SE05)	17:49	47	16:41 (SE05)	18:21	48	07:58 (SE07)	19:52	59	19:17 (SE04)	20:22	20:48
7	07:45	15:42 (SE05)	07:27	15:55 (SE05)	06:50	07:08 (SE07)	07:00	18:18 (SE04)	06:19	05:57				
	17:15	52	16:34 (SE05)	17:50	46	16:41 (SE05)	18:22	59	17:57 (SE03)	19:53	59	19:17 (SE04)	20:23	20:49
8	07:45	15:43 (SE05)	07:26	15:56 (SE05)	06:48	07:07 (SE07)	06:59	18:18 (SE04)	06:18	05:57				
	17:16	52	16:35 (SE05)	17:51	44	16:40 (SE05)	18:23	67	18:00 (SE03)	19:54	58	19:16 (SE04)	20:24	20:50
9	07:45	15:43 (SE05)	07:25	15:58 (SE05)	06:47	07:05 (SE07)	06:57	18:18 (SE04)	06:17	05:56				
	17:17	53	16:36 (SE05)	17:53	41	16:39 (SE05)	18:24	73	18:01 (SE03)	19:55	59	19:17 (SE04)	20:25	20:50
10	07:45	15:43 (SE05)	07:24	16:00 (SE05)	06:45	07:03 (SE07)	06:56	18:18 (SE04)	06:16	05:56				
	17:18	54	16:37 (SE05)	17:54	38	16:38 (SE05)	18:25	78	18:02 (SE03)	19:56	58	19:16 (SE04)	20:26	20:51
11	07:45	15:44 (SE05)	07:22	16:01 (SE05)	06:43	07:02 (SE07)	06:54	18:17 (SE04)	06:15	05:56				
	17:19	54	16:38 (SE05)	17:55	36	16:37 (SE05)	18:26	80	18:03 (SE03)	19:57	58	19:15 (SE04)	20:27	20:51
12	07:44	15:43 (SE05)	07:21	16:03 (SE05)	06:42	07:00 (SE07)	06:53	18:18 (SE04)	06:14	05:56				
	17:20	55	16:38 (SE05)	17:56	31	16:34 (SE05)	18:27	84	18:03 (SE03)	19:58	57	19:15 (SE04)	20:28	20:52
13	07:44	15:44 (SE05)	07:20	16:05 (SE05)	06:40	07:00 (SE07)	06:51	18:18 (SE04)	06:13	05:56				
	17:21	55	16:39 (SE05)	17:57	27	16:32 (SE05)	18:28	86	18:04 (SE03)	19:59	55	19:13 (SE04)	20:29	20:52
14	07:44	15:44 (SE05)	07:19	16:08 (SE05)	06:39	06:59 (SE07)	06:50	18:18 (SE04)	06:12	05:56				
	17:22	56	16:40 (SE05)	17:58	22	16:30 (SE05)	18:29	87	18:04 (SE03)	20:00	55	19:13 (SE04)	20:30	20:53
15	07:43	15:44 (SE05)	07:18	16:13 (SE05)	06:37	06:58 (SE07)	06:48	18:18 (SE04)	06:11	05:56				
	17:23	56	16:40 (SE05)	18:00	13	16:26 (SE05)	18:30	87	18:03 (SE03)	20:01	54	19:12 (SE04)	20:31	20:53
16	07:43	15:44 (SE05)	07:16		06:36	06:58 (SE07)	06:47	18:19 (SE04)	06:10	05:56				
	17:25	57	16:41 (SE05)	18:01		18:31	88	18:04 (SE03)	20:02	52	19:11 (SE04)	20:32	20:53	
17	07:43	15:44 (SE05)	07:15		06:34	06:58 (SE07)	06:45	18:20 (SE04)	06:09	05:56				
	17:26	57	16:41 (SE05)	18:02		18:32	87	18:03 (SE03)	20:03	51	19:11 (SE04)	20:32	20:54	
18	07:42	15:45 (SE05)	07:14		06:32	06:58 (SE07)	06:44	18:20 (SE04)	06:08	05:56				
	17:27	57	16:42 (SE05)	18:03		18:33	85	18:02 (SE03)	20:04	49	19:09 (SE04)	20:33	20:54	
19	07:42	15:45 (SE05)	07:13		06:31	06:58 (SE07)	06:42	18:22 (SE04)	06:07	05:56				
	17:28	57	16:42 (SE05)	18:04		18:34	83	18:01 (SE03)	20:05	47	19:09 (SE04)	20:34	20:54	
20	07:41	15:45 (SE05)	07:11		06:29	06:57 (SE07)	06:41	18:22 (SE04)	06:06	05:56				
	17:29	58	16:43 (SE05)	18:05		18:35	82	18:00 (SE04)	20:06	45	19:07 (SE04)	20:35	20:55	
21	07:41	15:45 (SE05)	07:10		06:28	06:58 (SE07)	06:40	18:23 (SE04)	06:06	05:56				
	17:30	58	16:43 (SE05)	18:06		18:36	84	18:05 (SE04)	20:07	43	19:06 (SE04)	20:36	20:55	
22	07:40	15:45 (SE05)	07:09		06:26	06:58 (SE07)	06:38	18:25 (SE04)	06:05	05:57				
	17:31	58	16:43 (SE05)	18:08		18:37	87	18:07 (SE04)	20:08	40	19:05 (SE04)	20:37	20:55	
23	07:40	15:46 (SE05)	07:07		06:24	06:59 (SE07)	06:37	18:25 (SE04)	06:04	05:57				
	17:32	58	16:44 (SE05)	18:09		18:38	90	18:10 (SE04)	20:09	37	19:02 (SE04)	20:38	20:55	
24	07:39	15:46 (SE05)	07:06		06:23	06:59 (SE07)	06:35	18:27 (SE04)	06:03	05:57				
	17:34	58	16:44 (SE05)	18:10		18:39	93	18:11 (SE04)	20:10	34	19:01 (SE04)	20:39	20:55	
25	07:38	15:46 (SE05)	07:04		06:21	06:59 (SE07)	06:34	18:29 (SE04)	06:03	05:57				
	17:35	58	16:44 (SE05)	18:11	14	07:40 (SE07)	18:40	94	18:12 (SE04)	20:11	30	18:59 (SE04)	20:40	20:56
26	07:38	15:46 (SE05)	07:03		06:20	07:00 (SE07)	06:33	18:31 (SE04)	06:02	05:58				
	17:36	58	16:44 (SE05)	18:12	23	07:45 (SE07)	18:41	97	18:14 (SE04)	20:12	25	18:56 (SE04)	20:40	20:56
27	07:37	15:48 (SE05)	07:01		06:18	07:00 (SE07)	06:31	18:34 (SE04)	06:02	05:58				
	17:37	57	16:45 (SE05)	18:13	27	07:47 (SE07)	18:42	96	18:14 (SE04)	20:13	19	18:53 (SE04)	20:41	20:56
28	07:36	15:48 (SE05)	07:00		06:16	07:01 (SE07)	06:30	18:40 (SE04)	06:01	05:58				
	17:38	56	16:44 (SE05)	18:14	31	07:50 (SE07)	18:43	96	18:15 (SE04)	20:14	8	18:48 (SE04)	20:42	20:56
29	07:35	15:48 (SE05)			06:15	08:02 (SE07)	06:29		06:00	05:59				
	17:39	56	16:44 (SE05)			19:44	96	19:16 (SE04)	20:15		20:43	20:56		
30	07:34	15:49 (SE05)			06:13	08:03 (SE07)	06:27		06:00	05:59				
	17:41	55	16:44 (SE05)			19:45	93	19:16 (SE04)	20:16		20:43	20:56		
31	07:34	15:49 (SE05)			06:12	08:05 (SE07)			05:59					
	17:42	55	16:44 (SE05)			19:46	92	19:17 (SE04)	20:17		20:44			
Potential sun hours	301		299		370		397		445		448			
Total, worst case	1699		699		2391		1432							

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F28 - SEMINATIVO IRR- SEMINATIVO
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September		October		November		December		
1	06:00	06:22	06:51	18:17 (SE04)	07:19	07:39 (SE07)	06:51	15:28 (SE05)	07:25	15:26 (SE05)	
	20:56	20:38	19:57	58 19:15 (SE04)	19:08	86 18:43 (SE03)	17:24	39 16:07 (SE05)	17:01	54 16:20 (SE05)	
2	06:00	06:23	06:52	18:16 (SE04)	07:20	07:40 (SE07)	06:53	15:27 (SE05)	07:26	15:27 (SE05)	
	20:56	20:37	19:55	58 19:14 (SE04)	19:07	82 18:42 (SE03)	17:22	42 16:09 (SE05)	17:01	53 16:20 (SE05)	
3	06:01	06:24	06:53	18:15 (SE04)	07:21	07:41 (SE07)	06:54	15:26 (SE05)	07:27	15:27 (SE05)	
	20:55	20:36	19:54	59 19:14 (SE04)	19:05	79 18:41 (SE03)	17:21	44 16:10 (SE05)	17:00	53 16:20 (SE05)	
4	06:01	06:25	06:54	18:15 (SE04)	07:22	07:42 (SE07)	06:55	15:25 (SE05)	07:28	15:28 (SE05)	
	20:55	20:35	19:52	58 19:13 (SE04)	19:03	76 18:40 (SE03)	17:20	46 16:11 (SE05)	17:00	52 16:20 (SE05)	
5	06:02	06:26	06:55	18:15 (SE04)	07:23	07:43 (SE07)	06:56	15:24 (SE05)	07:29	15:29 (SE05)	
	20:55	20:34	19:50	58 19:13 (SE04)	19:02	70 18:38 (SE03)	17:19	47 16:11 (SE05)	17:00	51 16:20 (SE05)	
6	06:02	06:27	06:56	18:14 (SE04)	07:24	07:44 (SE07)	06:57	15:23 (SE05)	07:30	15:28 (SE05)	
	20:55	20:32	19:49	59 19:13 (SE04)	19:00	64 18:35 (SE03)	17:18	49 16:12 (SE05)	17:00	51 16:19 (SE05)	
7	06:03	06:28	06:57	18:14 (SE04)	07:25	07:45 (SE07)	06:58	15:23 (SE05)	07:30	15:29 (SE05)	
	20:55	20:31	19:47	59 19:13 (SE04)	18:59	52 18:30 (SE03)	17:17	50 16:13 (SE05)	17:00	51 16:20 (SE05)	
8	06:04	06:29	06:58	08:11 (SE07)	07:26	07:46 (SE07)	06:59	15:22 (SE05)	07:31	15:30 (SE05)	
	20:54	20:30	19:46	69 19:12 (SE04)	18:57	46 08:32 (SE07)	17:16	52 16:14 (SE05)	17:00	50 16:20 (SE05)	
9	06:04	06:30	06:59	08:06 (SE07)	07:27	07:47 (SE07)	07:00	15:21 (SE05)	07:32	15:31 (SE05)	
	20:54	20:29	19:44	79 19:12 (SE04)	18:55	44 08:31 (SE07)	17:15	53 16:14 (SE05)	17:00	49 16:20 (SE05)	
10	06:05	06:31	07:00	08:02 (SE07)	07:28	07:48 (SE07)	07:02	15:20 (SE05)	07:33	15:31 (SE05)	
	20:54	20:28	19:42	85 19:11 (SE04)	18:54	42 08:30 (SE07)	17:14	55 16:15 (SE05)	17:00	50 16:21 (SE05)	
11	06:05	06:32	07:01	07:59 (SE07)	07:29	07:49 (SE07)	07:03	15:20 (SE05)	07:34	15:32 (SE05)	
	20:53	20:26	19:41	88 19:09 (SE04)	18:52	39 08:28 (SE07)	17:13	55 16:15 (SE05)	17:00	49 16:21 (SE05)	
12	06:06	06:33	07:01	07:56 (SE07)	07:30	07:50 (SE07)	07:04	15:20 (SE05)	07:35	15:33 (SE05)	
	20:53	20:25	19:39	92 19:08 (SE04)	18:51	36 08:26 (SE07)	17:12	56 16:16 (SE05)	17:00	48 16:21 (SE05)	
13	06:07	06:34	07:02	07:54 (SE07)	07:31	07:51 (SE07)	07:05	15:20 (SE05)	07:35	15:33 (SE05)	
	20:52	20:24	19:38	93 19:07 (SE04)	18:49	33 08:24 (SE07)	17:11	56 16:16 (SE05)	17:00	48 16:21 (SE05)	
14	06:08	06:34	07:03	07:53 (SE07)	07:32	07:52 (SE07)	07:06	15:20 (SE05)	07:36	15:34 (SE05)	
	20:52	20:23	19:36	95 19:06 (SE04)	18:48	29 08:21 (SE07)	17:10	56 16:16 (SE05)	17:00	47 16:21 (SE05)	
15	06:08	06:35	18:45 (SE04)	07:04	07:51 (SE07)	07:33	07:53 (SE07)	07:07	15:19 (SE05)	07:37	15:35 (SE05)
	20:51	20:21	11 18:56 (SE04)	19:34	96 19:05 (SE04)	18:46	25 08:18 (SE07)	17:09	58 16:17 (SE05)	17:01	47 16:22 (SE05)
16	06:09	06:36	18:40 (SE04)	07:05	07:50 (SE07)	07:34	07:55 (SE07)	07:08	15:20 (SE05)	07:38	15:35 (SE05)
	20:51	20:20	20 19:00 (SE04)	19:33	96 19:04 (SE04)	18:45	20 08:15 (SE07)	17:09	58 16:18 (SE05)	17:01	47 16:22 (SE05)
17	06:10	06:37	18:37 (SE04)	07:06	07:48 (SE07)	07:35	08:01 (SE07)	07:10	15:20 (SE05)	07:38	15:36 (SE05)
	20:50	20:19	26 19:03 (SE04)	19:31	97 19:02 (SE04)	18:43	7 08:08 (SE07)	17:08	58 16:18 (SE05)	17:01	46 16:22 (SE05)
18	06:11	06:38	18:35 (SE04)	07:07	07:47 (SE07)	07:36	07:11	15:20 (SE05)	07:39	15:37 (SE05)	
	20:49	20:17	30 19:05 (SE04)	19:29	95 19:01 (SE04)	18:42	17:07	58 16:18 (SE05)	17:02	46 16:23 (SE05)	
19	06:11	06:39	18:33 (SE04)	07:08	07:46 (SE07)	07:37	07:12	15:20 (SE05)	07:40	15:37 (SE05)	
	20:49	20:16	34 19:07 (SE04)	19:28	94 18:59 (SE04)	18:41	17:06	58 16:18 (SE05)	17:02	46 16:23 (SE05)	
20	06:12	06:40	18:31 (SE04)	07:09	07:45 (SE07)	07:38	07:13	15:20 (SE05)	07:40	15:38 (SE05)	
	20:48	20:14	37 19:08 (SE04)	19:26	92 18:57 (SE04)	18:39	17:06	58 16:18 (SE05)	17:02	46 16:24 (SE05)	
21	06:13	06:41	18:29 (SE04)	07:10	07:43 (SE07)	07:39	07:14	15:20 (SE05)	07:41	15:38 (SE05)	
	20:47	20:13	41 19:10 (SE04)	19:24	89 18:53 (SE04)	18:38	17:05	58 16:18 (SE05)	17:03	46 16:24 (SE05)	
22	06:14	06:42	18:28 (SE04)	07:11	07:42 (SE07)	07:40	07:15	15:21 (SE05)	07:41	15:39 (SE05)	
	20:47	20:12	43 19:11 (SE04)	19:23	84 18:50 (SE04)	18:36	17:05	58 16:19 (SE05)	17:03	46 16:25 (SE05)	
23	06:15	06:43	18:27 (SE04)	07:12	07:42 (SE07)	07:42	07:16	15:22 (SE05)	07:42	15:39 (SE05)	
	20:46	20:10	45 19:12 (SE04)	19:21	82 18:46 (SE04)	18:35	17:04	57 16:19 (SE05)	17:04	46 16:25 (SE05)	
24	06:15	06:44	18:24 (SE04)	07:13	07:41 (SE07)	07:43	07:17	15:22 (SE05)	07:42	15:40 (SE05)	
	20:45	20:09	48 19:12 (SE04)	19:19	82 18:44 (SE03)	18:34	17:04	57 16:19 (SE05)	17:04	46 16:26 (SE05)	
25	06:16	06:45	18:23 (SE04)	07:14	07:41 (SE07)	06:44	07:18	15:22 (SE05)	07:43	15:40 (SE05)	
	20:44	20:07	49 19:12 (SE04)	19:18	84 18:45 (SE03)	17:32	17:03	57 16:19 (SE05)	17:05	46 16:26 (SE05)	
26	06:17	06:46	18:22 (SE04)	07:14	07:40 (SE07)	06:45	07:19	15:23 (SE05)	07:43	15:40 (SE05)	
	20:44	20:06	51 19:13 (SE04)	19:16	86 18:45 (SE03)	17:31	17:03	56 16:19 (SE05)	17:06	46 16:26 (SE05)	
27	06:18	06:47	18:21 (SE04)	07:15	07:40 (SE07)	06:46	07:21	15:23 (SE05)	07:43	15:41 (SE05)	
	20:43	20:04	52 19:13 (SE04)	19:15	87 18:45 (SE03)	17:30	16 15:56 (SE05)	17:02	56 16:19 (SE05)	17:06	46 16:27 (SE05)
28	06:19	06:48	18:20 (SE04)	07:16	07:40 (SE07)	06:47	15:37 (SE05)	07:22	15:23 (SE05)	07:44	15:41 (SE05)
	20:42	20:03	54 19:14 (SE04)	19:13	87 18:45 (SE03)	17:28	23 16:00 (SE05)	17:02	56 16:19 (SE05)	17:07	47 16:28 (SE05)
29	06:20	06:49	18:19 (SE04)	07:17	07:39 (SE07)	06:48	15:34 (SE05)	07:23	15:24 (SE05)	07:44	15:41 (SE05)
	20:41	20:01	55 19:14 (SE04)	19:11	88 18:44 (SE03)	17:27	29 16:03 (SE05)	17:01	55 16:19 (SE05)	17:08	47 16:28 (SE05)
30	06:21	06:49	18:19 (SE04)	07:18	07:39 (SE07)	06:49	15:32 (SE05)	07:24	15:25 (SE05)	07:44	15:41 (SE05)
	20:40	20:00	55 19:14 (SE04)	19:10	87 18:44 (SE03)	17:26	32 16:04 (SE05)	17:01	55 16:20 (SE05)	17:08	48 16:29 (SE05)
31	06:22	06:50	18:18 (SE04)			06:50				07:44	15:41 (SE05)
	20:39	19:58	57 19:15 (SE04)			17:25	36 16:06 (SE05)			17:09	48 16:29 (SE05)
Potential sun hours	455	425		374		347		301		292	
Total, worst case			708		2436		966		1613		1496

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)



SHADOW - Calendar

Calculation: Shadow_progetto_2021_12_23Shadow receptor: F29 - ULIVETO - VIGNETO

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

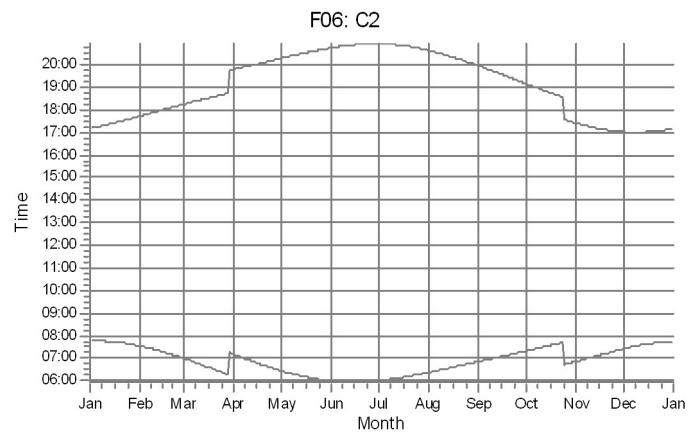
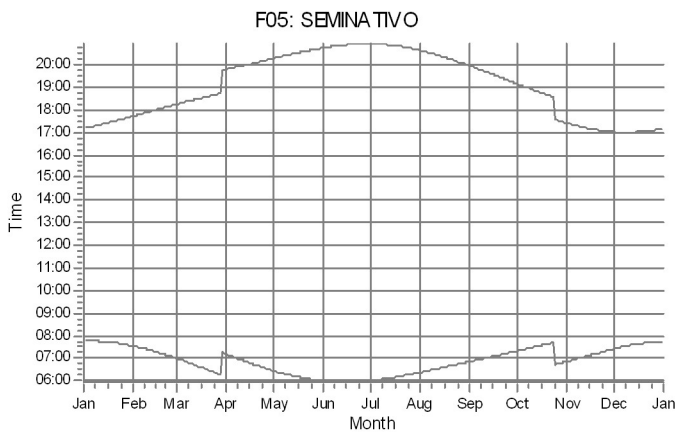
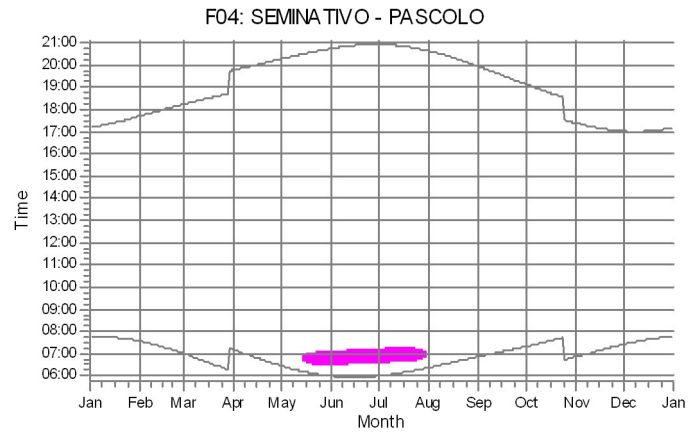
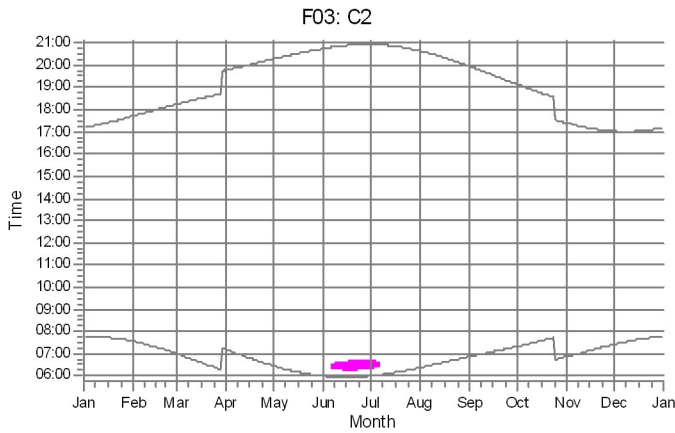
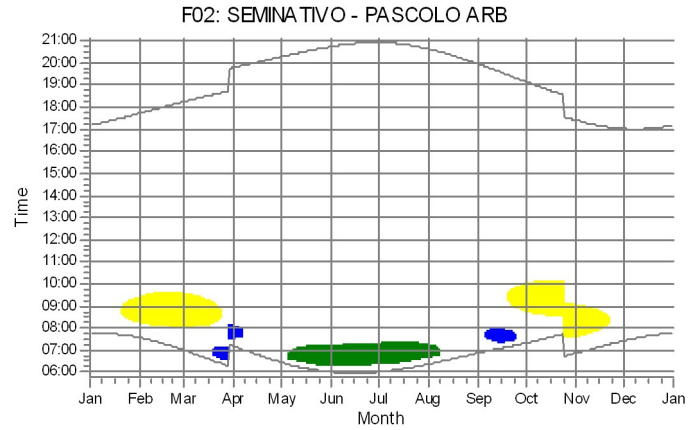
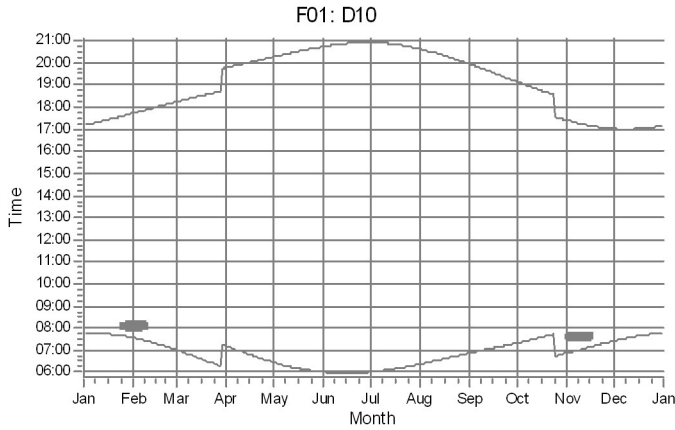
	January	February	March	April	May	June	July	August	September	October	November	December
1	07:45 17:10	07:33 17:43	06:59 18:15	07:10 19:47	06:26 20:17	05:59 20:45	06:00 20:56					
2	07:45 17:11	07:32 17:44	06:57 18:16	07:08 19:48	06:25 20:18	05:58 20:46	06:00 20:55	21	20:05 (SE05) 20:26 (SE05)	06:22 20:38	06:51 19:08	07:19 17:24
3	07:45 17:12	07:31 17:45	06:56 18:17	07:07 19:49	06:24 20:19	05:58 20:46	06:01 20:55	8	20:05 (SE05) 20:13 (SE05)	06:01 20:55	06:24 19:54	07:21 19:05
4	07:45 17:13	07:30 17:47	06:54 18:19	07:05 19:50	06:22 20:20	05:58 20:47	06:01 20:55	11	20:04 (SE05) 20:15 (SE05)	06:01 20:55	06:25 20:35	06:54 19:52
5	07:45 17:14	07:29 17:48	06:53 18:20	07:04 19:51	06:21 20:21	05:57 20:48	06:02 20:55	14	20:02 (SE05) 20:16 (SE05)	06:02 20:55	06:26 20:34	06:55 19:50
6	07:45 17:14	07:28 17:49	06:51 18:21	07:02 19:52	06:20 20:22	05:57 20:48	06:02 20:55	15	20:02 (SE05) 20:17 (SE05)	06:02 20:55	06:27 20:32	06:56 19:49
7	07:45 17:15	07:27 17:50	06:50 18:22	07:00 19:53	06:19 20:23	05:57 20:49	06:03 20:54	15	20:02 (SE05) 20:19 (SE05)	06:03 20:54	06:28 20:31	06:57 19:47
8	07:45 17:16	07:26 17:51	06:48 18:23	06:59 19:54	06:18 20:24	05:57 20:49	06:04 20:54	12	20:01 (SE05) 20:20 (SE05)	06:04 20:54	06:29 20:30	06:58 19:46
9	07:45 17:17	07:25 17:53	06:47 18:24	06:57 19:55	06:17 20:25	05:56 20:50	06:04 20:54	9	20:01 (SE05) 20:20 (SE05)	06:04 20:54	06:30 20:29	06:59 19:44
10	07:45 17:18	07:24 17:54	06:45 18:25	06:56 19:56	06:16 20:26	05:56 20:51	06:05 20:53	5	20:02 (SE05) 20:21 (SE05)	06:05 20:53	06:31 20:28	07:00 19:42
11	07:45 17:19	07:22 17:55	06:43 18:26	06:54 19:57	06:15 20:27	05:56 20:51	06:05 20:53	20	20:00 (SE05) 20:21 (SE05)	06:05 20:53	06:32 20:26	07:01 19:41
12	07:45 17:20	07:21 17:56	06:42 18:27	06:53 19:58	06:14 20:28	05:56 20:52	06:06 20:53	21	20:00 (SE05) 20:21 (SE05)	06:06 20:53	06:33 20:25	07:01 19:39
13	07:45 17:21	07:20 17:57	06:40 18:28	06:51 19:59	06:13 20:29	05:56 20:52	06:07 20:52	22	20:00 (SE05) 20:22 (SE05)	06:07 20:52	06:34 20:24	07:02 19:37
14	07:45 17:22	07:19 17:58	06:39 18:29	06:50 20:00	06:12 20:30	05:56 20:53	06:08 20:52	9	20:00 (SE05) 20:22 (SE05)	06:08 20:52	06:34 20:23	07:03 19:36
15	07:45 17:23	07:18 18:00	06:37 18:30	06:48 20:01	06:11 20:31	05:56 20:53	06:08 20:51	23	20:00 (SE05) 20:23 (SE05)	06:08 20:51	06:35 20:21	07:04 19:34
16	07:45 17:25	07:16 18:01	06:36 18:31	06:47 20:02	06:10 20:32	05:56 20:53	06:09 20:51	23	20:00 (SE05) 20:24 (SE05)	06:09 20:51	06:36 20:20	07:05 19:33
17	07:45 17:26	07:15 18:02	06:34 18:32	06:45 20:03	06:09 20:32	05:56 20:54	06:10 20:50	23	20:01 (SE05) 20:24 (SE05)	06:10 20:50	06:37 20:19	07:06 19:31
18	07:45 17:27	07:14 18:03	06:32 18:33	06:44 20:04	06:08 20:33	05:56 20:54	06:11 20:49	24	20:01 (SE05) 20:25 (SE05)	06:11 20:49	06:38 20:17	07:07 19:29
19	07:45 17:28	07:12 18:04	06:31 18:34	06:42 20:05	06:07 20:34	05:56 20:54	06:11 20:49	24	20:01 (SE05) 20:25 (SE05)	06:11 20:49	06:39 20:16	07:08 19:28
20	07:45 17:29	07:11 18:05	06:29 18:35	06:41 20:06	06:06 20:35	05:56 20:55	06:12 20:48	24	20:01 (SE05) 20:25 (SE05)	06:12 20:48	06:40 20:14	07:09 19:26
21	07:45 17:30	07:10 18:06	06:28 18:36	06:40 20:07	06:06 20:36	05:56 20:55	06:13 20:47	24	20:01 (SE05) 20:25 (SE05)	06:13 20:47	06:41 20:13	07:10 19:24
22	07:45 17:31	07:08 18:07	06:26 18:37	06:38 20:08	06:05 20:37	05:57 20:55	06:14 20:47	24	20:01 (SE05) 20:25 (SE05)	06:14 20:47	06:42 20:12	07:11 19:23
23	07:45 17:32	07:07 18:09	06:24 18:38	06:37 20:09	06:04 20:38	05:57 20:55	06:15 20:46	24	20:02 (SE05) 20:26 (SE05)	06:15 20:46	06:43 20:10	07:12 19:21
24	07:45 17:34	07:06 18:10	06:23 18:39	06:35 20:10	06:03 20:39	05:57 20:55	06:15 20:45	24	20:02 (SE05) 20:26 (SE05)	06:15 20:45	06:44 20:09	07:13 19:19
25	07:45 17:35	07:04 18:11	06:21 18:40	06:34 20:11	06:03 20:39	05:57 20:55	06:16 20:44	24	20:02 (SE05) 20:26 (SE05)	06:16 20:44	06:45 20:07	07:14 19:18
26	07:45 17:36	07:03 18:12	06:20 18:41	06:33 20:12	06:02 20:40	05:58 20:56	06:17 20:43	23	20:03 (SE05) 20:26 (SE05)	06:17 20:43	06:46 20:06	07:14 19:16
27	07:45 17:37	07:01 18:13	06:18 18:42	06:31 20:13	06:02 20:41	05:58 20:56	06:18 20:43	23	20:03 (SE05) 20:26 (SE05)	06:18 20:43	06:47 20:04	07:15 19:15
28	07:45 17:38	07:00 18:14	06:16 18:43	06:30 20:14	06:01 20:42	05:58 20:56	06:19 20:42	23	20:03 (SE05) 20:26 (SE05)	06:19 20:42	06:48 20:03	07:16 19:13
29	07:45 17:39	07:35 18:15	07:15 19:44	06:29 20:15	06:00 20:43	05:59 20:56	06:20 20:41	22	20:04 (SE05) 20:26 (SE05)	06:20 20:41	06:48 20:01	07:17 19:11
30	07:45 17:41	07:34 18:17	07:13 19:45	06:27 20:16	06:00 20:43	05:59 20:56	06:21 20:40	22	20:04 (SE05) 20:26 (SE05)	06:21 20:40	06:49 20:00	07:18 19:10
31	07:45 17:42	07:34 18:18	07:12 19:46	06:27 20:17	06:00 20:44	05:59 20:56	06:22 20:39	22	20:04 (SE05) 20:26 (SE05)	06:22 20:39	06:50 19:58	07:19 17:25
Potential sun hours	301	299	370	397	445	448	455	425	374	347	301	292
Total, worst case						583	156					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar, graphical

Calculation: Shadow_progetto_2021_12_23

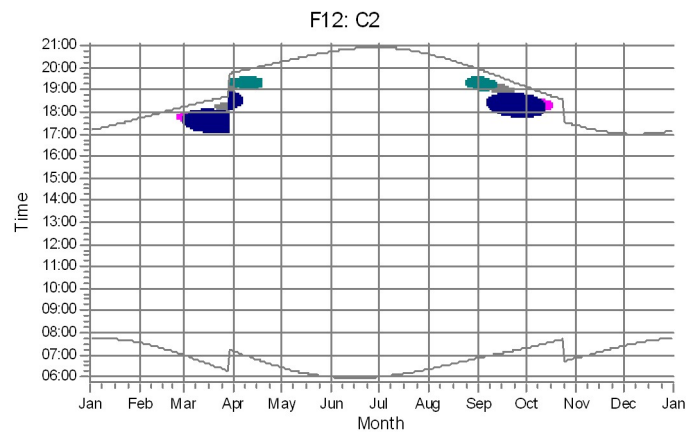
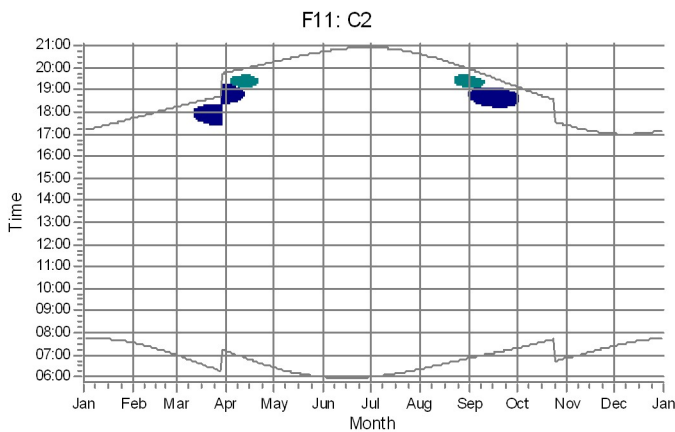
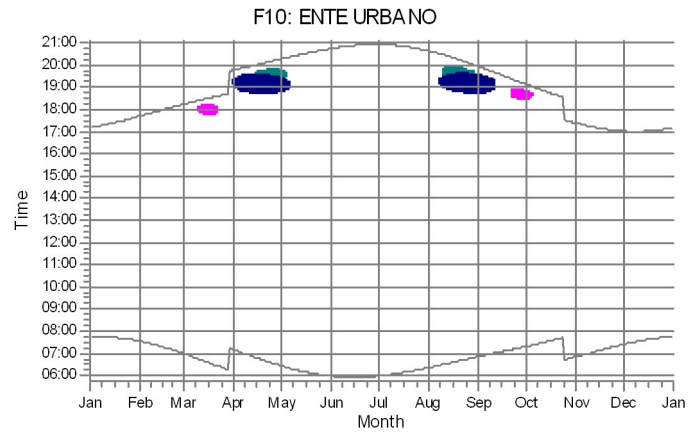
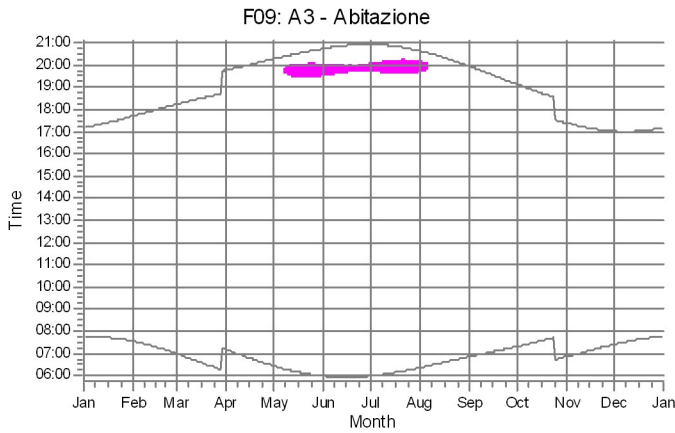
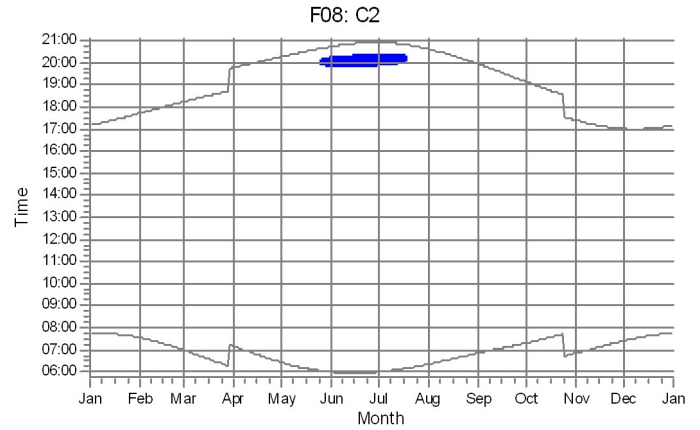
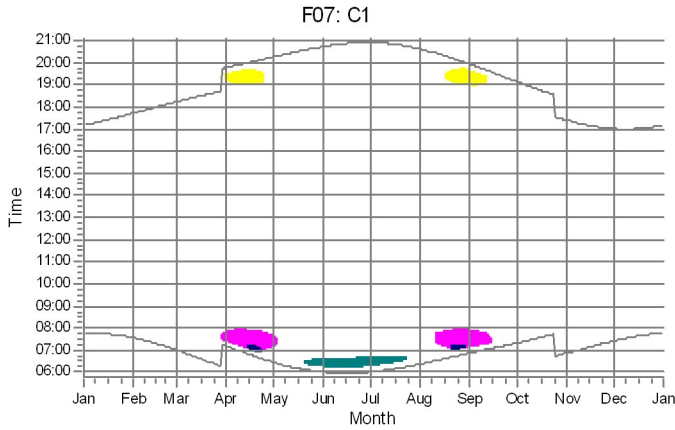


WTGs

- SE01: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (3)
- SE02: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (2)
- SE03: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (4)
- SE04: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (5)
- SE05: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (6)

SHADOW - Calendar, graphical

Calculation: Shadow_progetto_2021_12_23

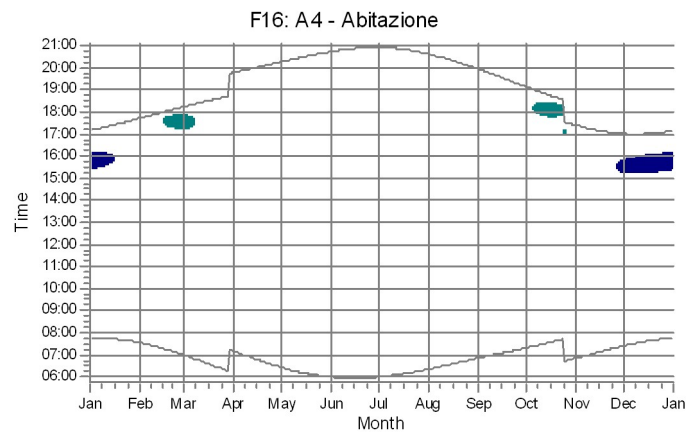
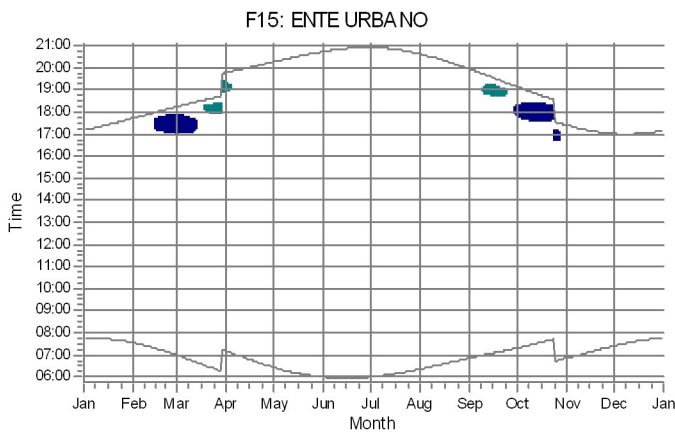
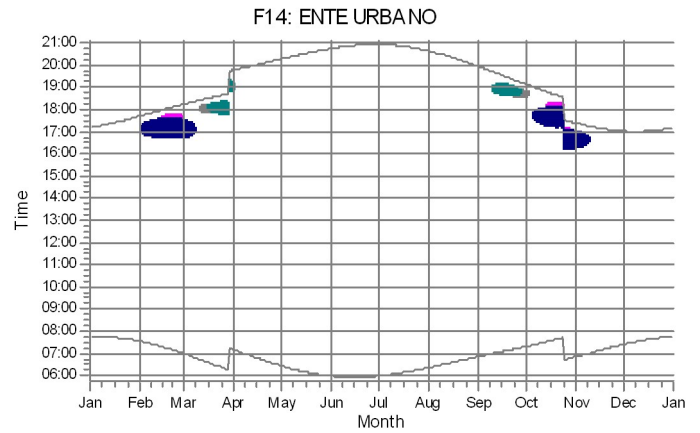
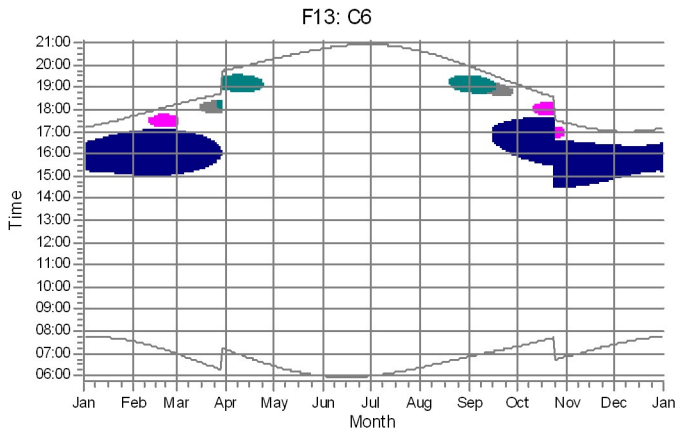
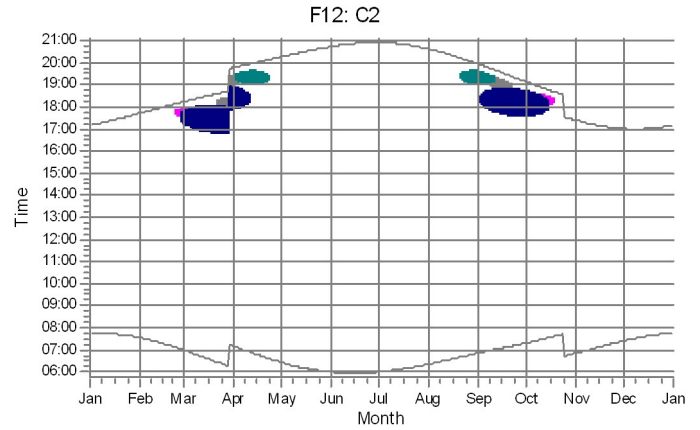
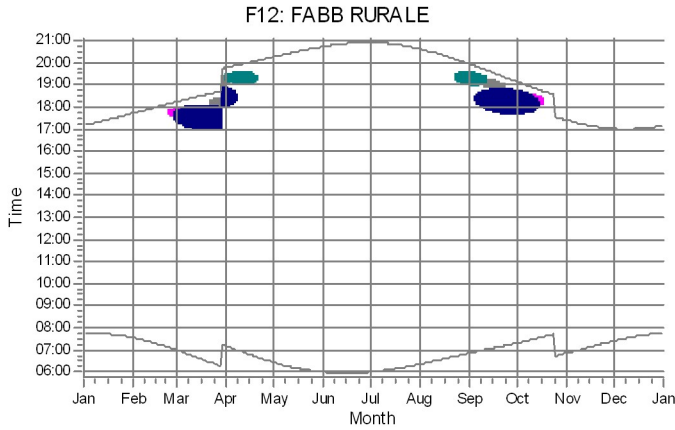


WTGs

- SE02: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (2)
- SE03: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (4)
- SE04: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (5)
- SE05: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (6)
- SE06: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (7)
- SE07: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (8)

SHADOW - Calendar, graphical

Calculation: Shadow_progetto_2021_12_23

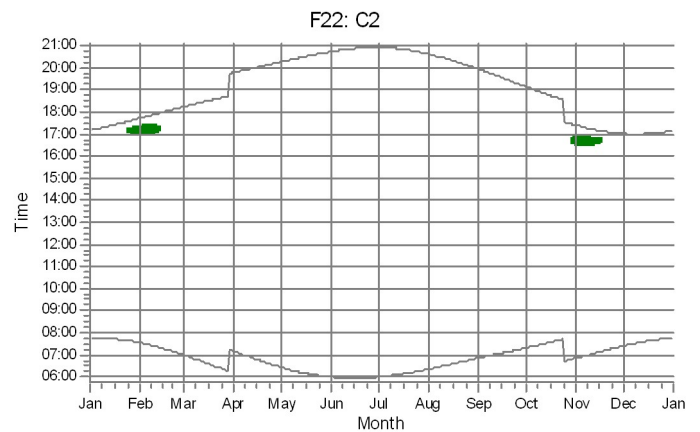
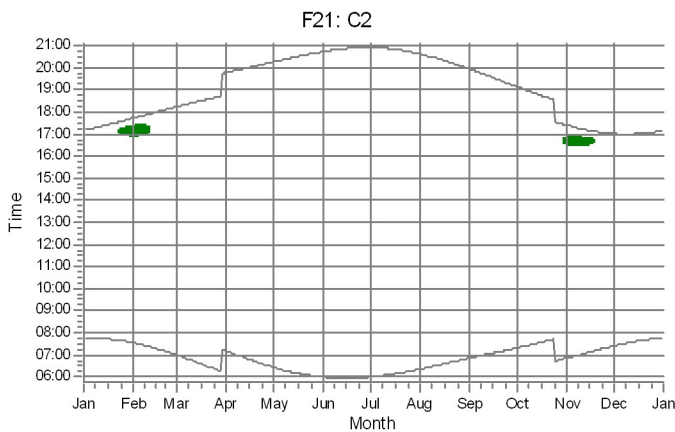
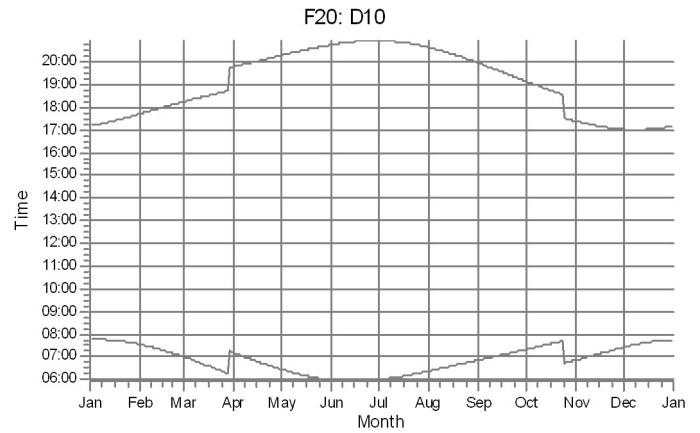
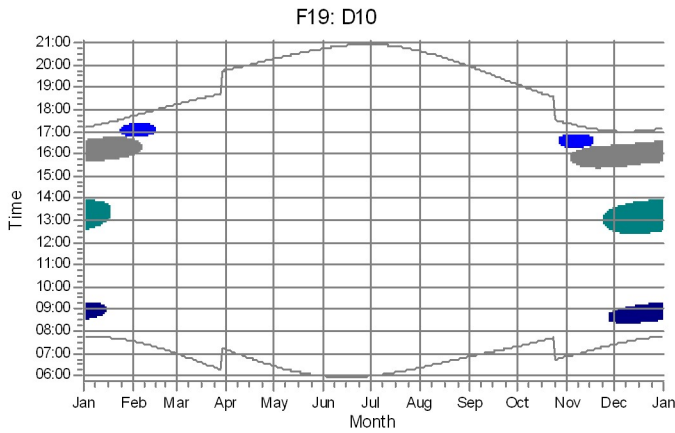
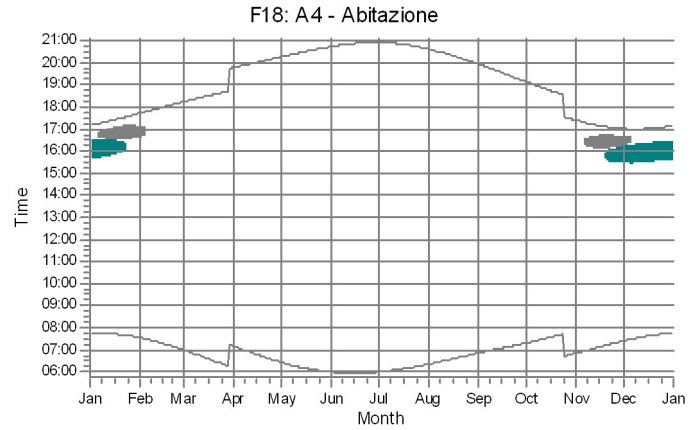
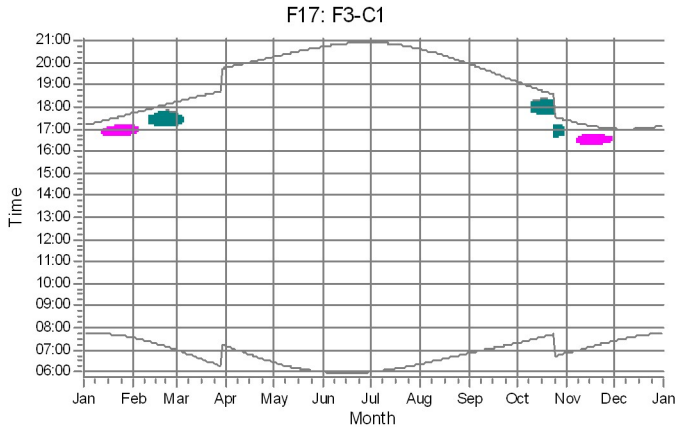


WTGs

- SE04: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (5)
- SE05: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (6)
- SE06: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (7)
- SE07: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (8)

SHADOW - Calendar, graphical

Calculation: Shadow_progetto_2021_12_23

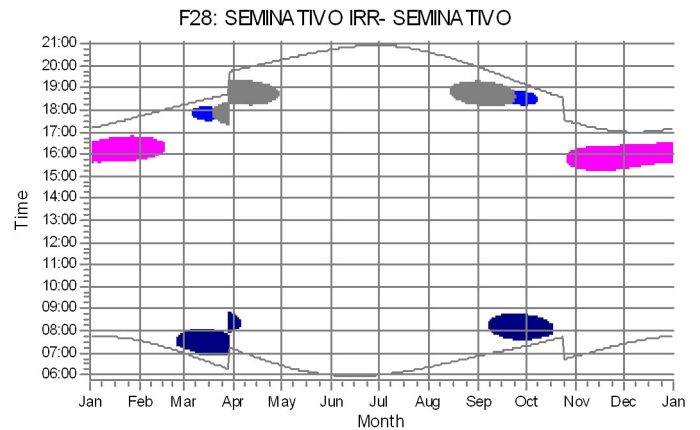
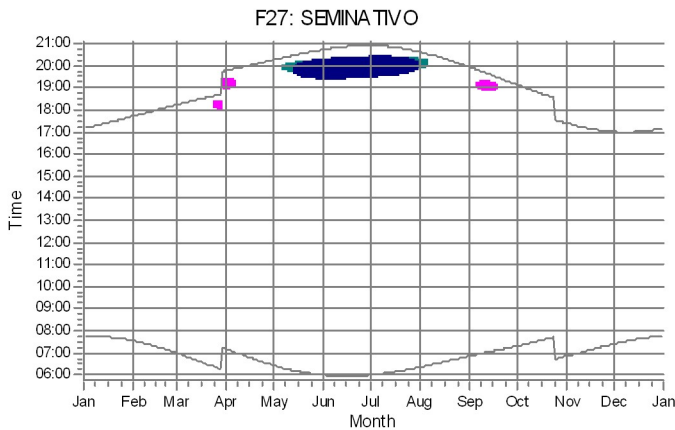
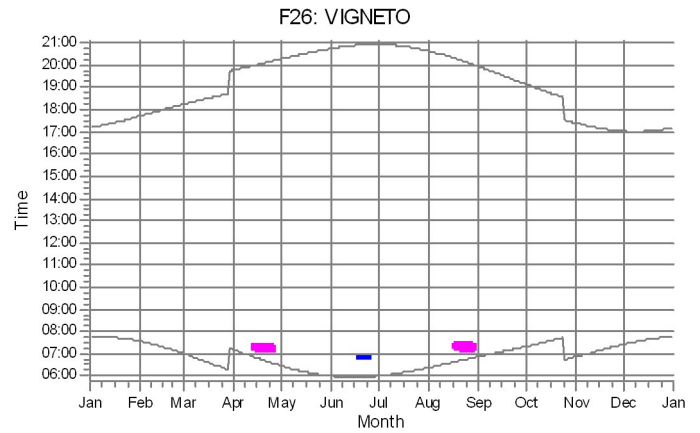
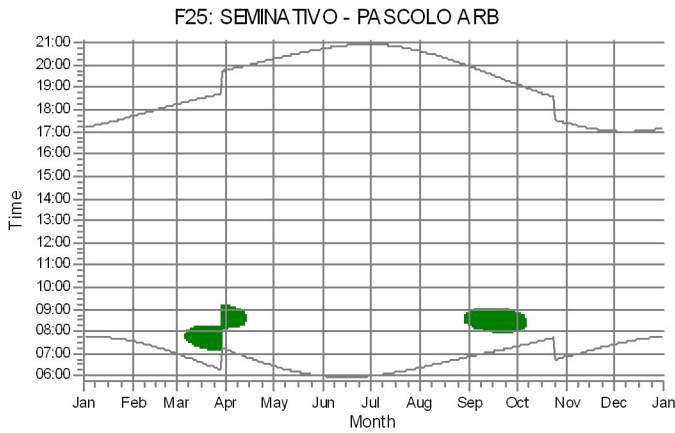
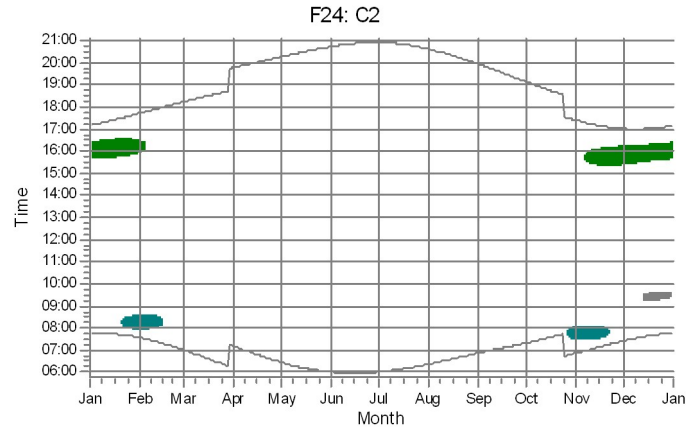
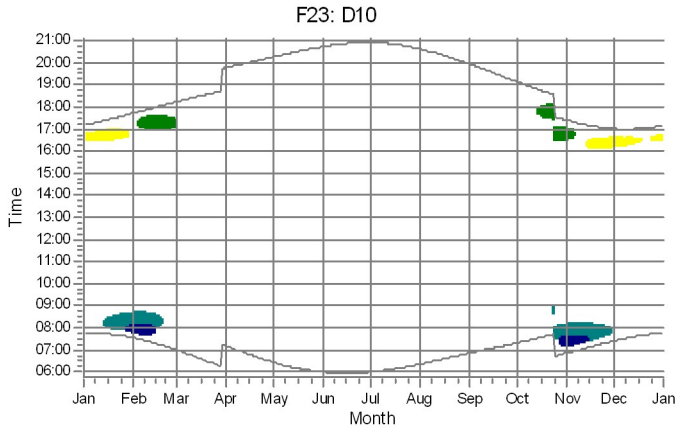


WTGs

- SE01: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (3)
- SE03: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (4)
- SE04: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (5)
- SE05: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (6)
- SE06: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (7)
- SE07: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (8)

SHADOW - Calendar, graphical

Calculation: Shadow_progetto_2021_12_23

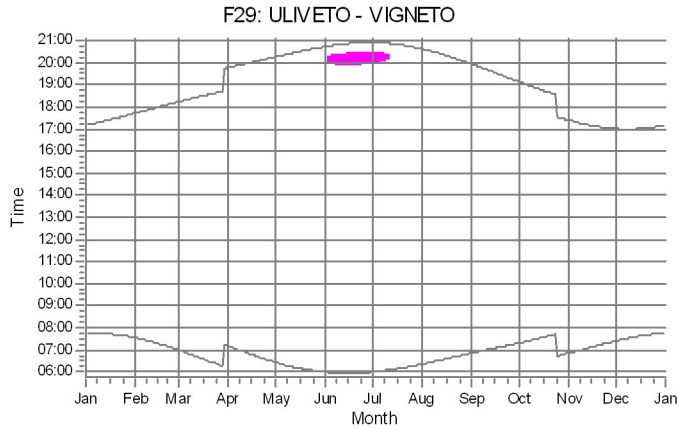


WTGs

- SE01: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (3)
- SE02: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (2)
- SE03: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (4)
- SE04: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (5)
- SE05: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (6)
- SE06: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (7)
- SE07: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (8)

SHADOW - Calendar, graphical

Calculation: Shadow_progetto_2021_12_23



WTGs

SE05: Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (6)

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE01 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (3)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:45 15:44-16:21/37 17:10	07:33 16:01-16:24/23 17:43 17:00-17:19/19	06:59 18:15	07:10 08:13-09:06/53 19:47	06:26 20:17	05:59 06:20-07:10/50 20:45
2	07:45 15:44-16:22/38 17:11	07:32 16:04-16:23/19 17:44 17:00-17:21/21	06:57 18:16	07:08 08:14-09:06/52 19:48	06:25 20:18	05:59 06:20-07:11/51 20:46
3	07:45 15:45-16:22/37 17:12	07:31 16:06-16:20/14 17:45 17:00-17:22/22	06:56 18:18	07:07 08:14-09:04/50 19:49	06:24 20:19	05:58 06:20-07:10/50 20:46
4	07:45 15:45-16:23/38 17:13	07:30 17:01-17:23/22 17:47	06:54 18:19	07:05 08:14-09:03/49 19:50	06:23 20:20	05:58 06:20-07:11/51 20:47
5	07:45 15:45-16:24/39 17:14	07:29 17:01-17:25/24 17:48	06:53 18:20	07:04 08:15-09:02/47 19:51	06:21 20:21	05:58 06:20-07:11/51 20:48
6	07:45 15:45-16:24/39 17:15	07:28 17:01-17:25/24 17:49	06:51 18:21	07:02 08:15-09:00/45 19:52	06:20 06:39-06:49/10 20:22	05:57 06:20-07:11/51 20:48
7	07:45 15:45-16:24/39 17:15	07:27 17:02-17:27/25 17:50	06:50 07:47-07:49/2 18:22	07:01 08:17-08:59/42 19:53	06:19 06:38-06:53/15 20:23	05:57 06:20-07:11/51 20:49
8	07:45 15:45-16:25/40 17:16	07:26 17:03-17:29/26 17:51	06:48 07:39-07:58/19 18:23	06:59 08:17-08:56/39 19:54	06:18 06:37-06:55/18 20:24	05:57 06:21-07:11/50 20:50
9	07:45 15:46-16:26/40 17:17	07:25 17:04-17:30/26 17:53	06:47 07:34-08:01/27 18:24	06:57 08:19-08:55/36 19:55	06:17 06:36-06:57/21 20:25	05:57 06:21-07:12/51 20:50
10	07:45 15:46-16:26/40 17:18	07:24 17:05-17:31/26 17:54	06:45 07:32-08:04/32 18:25	06:56 08:20-08:52/32 19:56	06:16 06:35-06:59/24 20:26	05:56 06:21-07:12/51 20:51
11	07:45 15:47-16:27/40 17:19	07:23 17:04-17:32/28 17:55	06:44 07:29-08:05/36 18:26	06:54 08:23-08:50/27 19:57	06:15 06:34-07:00/26 20:27	05:56 06:22-07:12/50 20:51
12	07:44 15:46-16:27/41 17:20	07:21 17:03-17:32/29 17:56	06:42 07:27-08:07/40 18:27	06:53 08:25-08:46/21 19:58	06:14 06:33-07:01/28 20:28	05:56 06:22-07:12/50 20:52
13	07:44 15:47-16:28/41 17:21	07:20 17:02-17:33/31 17:57	06:40 07:25-08:08/43 18:28	06:51 08:29-08:42/13 19:59	06:13 06:32-07:02/30 20:29	05:56 06:22-07:13/51 20:52
14	07:44 15:48-16:28/40 17:23	07:19 17:02-17:34/32 17:58	06:39 07:23-08:09/46 18:29	06:50 20:00	06:12 06:31-07:03/32 20:30	05:56 06:23-07:13/50 20:53
15	07:44 15:48-16:28/40 17:24	07:18 17:02-17:34/32 18:00	06:37 07:22-08:11/49 18:30	06:48 20:01	06:11 06:31-07:05/34 20:31	05:56 06:23-07:13/50 20:53
16	07:43 15:48-16:29/41 17:25	07:16 17:01-17:34/33 18:01	06:36 07:21-08:11/50 18:31	06:47 20:02	06:10 06:30-07:05/35 20:32	05:56 06:23-07:13/50 20:53
17	07:43 15:48-16:29/41 17:26	07:15 17:01-17:34/33 18:02	06:34 07:19-08:11/52 18:32	06:45 20:03	06:09 06:29-07:06/37 20:33	05:56 06:23-07:13/50 20:54
18	07:42 15:49-16:30/41 17:27	07:14 17:02-17:34/32 18:03	06:32 07:19-08:12/53 18:33	06:44 20:04	06:08 06:28-07:06/38 20:34	05:56 06:23-07:13/50 20:54
19	07:42 15:49-16:29/40 17:28	07:13 17:01-17:34/33 18:04	06:31 07:17-08:12/55 18:34	06:42 20:05	06:07 06:27-07:06/39 20:34	05:56 06:23-07:13/50 20:54
20	07:41 15:50-16:30/40 17:29	07:11 17:02-17:33/31 18:05	06:29 07:17-08:13/56 18:35	06:41 20:06	06:07 06:27-07:07/40 20:35	05:56 06:23-07:13/50 20:55
21	07:41 15:50-16:30/40 17:30	07:10 17:03-17:33/30 18:07	06:28 07:16-08:12/56 18:36	06:40 20:07	06:06 06:26-07:08/42 20:36	05:57 06:23-07:13/50 20:55
22	07:40 15:51-16:30/39 17:31	07:09 17:03-17:32/29 18:08	06:26 07:15-08:12/57 18:37	06:38 20:08	06:05 06:25-07:08/43 20:37	05:57 06:24-07:14/50 20:55
23	07:40 15:52-16:30/38 17:33	07:07 17:04-17:31/27 18:09	06:24 07:15-08:12/57 18:38	06:37 20:09	06:04 06:25-07:09/44 20:38	05:57 06:24-07:14/50 20:55
24	07:39 15:52-16:30/38 17:34	07:06 17:05-17:31/26 18:10	06:23 07:14-08:12/58 18:39	06:35 20:10	06:04 06:24-07:09/45 20:39	05:57 06:24-07:14/50 20:56
25	07:38 15:53-16:29/36 17:35	07:04 17:06-17:28/22 18:11	06:21 07:13-08:11/58 18:40	06:34 20:11	06:03 06:23-07:08/45 20:40	05:58 06:24-07:14/50 20:56
26	07:38 15:54-16:30/36 17:36	07:03 17:08-17:27/19 18:12	06:20 07:13-08:11/58 18:41	06:33 20:12	06:02 06:23-07:09/46 20:40	05:58 06:25-07:15/50 20:56
27	07:37 15:55-16:29/34 17:37	07:02 17:10-17:24/14 18:13	06:18 07:13-08:10/57 18:42	06:31 20:13	06:02 06:22-07:09/47 20:41	05:58 06:25-07:15/50 20:56
28	07:36 15:56-16:29/33 17:38	07:00 18:14	06:16 07:13-08:10/57 18:43	06:30 20:14	06:01 06:22-07:10/48 20:42	05:59 06:25-07:15/50 20:56
29	07:35 15:57-16:28/31 17:40	07:00 19:44	07:15 08:13-09:09/56 19:44	06:29 20:15	06:00 06:21-07:10/49 20:43	05:59 06:25-07:16/51 20:56
30	07:35 15:58-16:27/29 17:41	07:00 19:45	07:13 08:12-09:08/56 19:45	06:28 20:16	06:00 06:21-07:10/49 20:44	05:59 06:25-07:15/50 20:56
31	07:34 16:00-16:26/26 17:42	07:00 19:46	07:12 08:13-09:08/55 19:46	06:28 20:16	05:59 06:20-07:10/50 20:44	05:59 06:20-07:10/50 20:56
Potential sun hours	301	299	370	397	445	448
Sum of minutes with flicker	1264	772	1185	506	935	1509

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE01 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (3)
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	06:00 06:26-07:16/50 20:56	06:23 06:44-07:11/27 20:38	06:51 08:21-08:49/28 19:57	07:19 08:05-08:47/42 19:08	06:52 16:34-17:00/26 17:24	07:25 15:29-16:09/40 17:01
2	06:00 06:26-07:16/50 20:56	06:23 06:45-07:10/25 20:37	06:52 08:19-08:51/32 19:55	07:20 08:07-08:45/38 19:07	06:53 16:34-17:00/26 17:22	07:26 15:29-16:09/40 17:01
3	06:01 06:26-07:17/51 20:55	06:24 06:46-07:09/23 20:36	06:53 08:16-08:52/36 19:54	07:21 08:09-08:43/34 19:05	06:54 16:33-16:58/25 17:21	07:27 15:30-16:10/40 17:00
4	06:01 06:26-07:16/50 20:55	06:25 06:47-07:07/20 20:35	06:54 08:14-08:53/39 19:52	07:22 08:11-08:40/29 19:03	06:55 16:32-16:56/24 17:20	07:28 15:30-16:10/40 17:00
5	06:02 06:26-07:17/51 20:55	06:26 06:48-07:05/17 20:34	06:55 08:13-08:55/42 19:50	07:23 08:13-08:36/23 19:02	06:56 16:31-16:55/24 17:19	07:29 15:31-16:10/39 17:00
6	06:02 06:26-07:17/51 20:55	06:27 06:48-07:01/13 20:33	06:56 08:11-08:56/45 19:49	07:24 08:18-08:31/13 19:00	06:57 16:31-16:54/23 17:18	07:30 15:31-16:10/39 17:00
7	06:03 06:27-07:17/50 20:55	06:28 06:50-06:56/6 20:31	06:57 08:10-08:57/47 19:47	07:25 08:18-08:59/50 18:59	06:58 15:42-15:47/5 17:17	07:31 15:31-16:10/39 17:00
8	06:04 06:27-07:18/51 20:54	06:29 06:51-06:57/6 20:30	06:58 08:09-08:58/49 19:46	07:26 08:19-08:51/32 18:57	06:59 15:37-15:51/14 17:16	07:32 15:32-16:11/38 17:00
9	06:04 06:27-07:18/51 20:54	06:30 06:52-06:58/6 20:29	06:59 08:08-08:58/50 19:44	07:27 08:19-08:51/32 18:56	07:01 15:34-15:54/20 17:15	07:33 15:33-16:11/38 17:00
10	06:05 06:27-07:18/51 20:54	06:31 06:53-06:59/6 20:28	07:00 08:07-08:59/52 19:42	07:28 08:20-08:52/34 18:54	07:02 15:32-15:55/23 17:14	07:34 15:34-16:11/38 17:00
11	06:06 06:27-07:18/51 20:53	06:32 06:54-06:60/6 20:27	07:01 08:06-08:59/53 19:41	07:29 08:21-08:53/35 18:52	07:03 15:32-15:58/26 17:13	07:34 15:34-16:11/38 17:00
12	06:06 06:28-07:18/50 20:53	06:33 06:55-06:61/6 20:25	07:02 08:04-08:59/55 19:39	07:30 08:22-08:54/36 18:51	07:04 15:30-15:59/29 17:12	07:35 15:35-16:12/37 17:00
13	06:07 06:29-07:18/49 20:52	06:34 06:56-06:62/6 20:24	07:02 08:04-08:59/55 19:38	07:31 08:23-08:55/37 18:49	07:05 15:29-16:00/31 17:11	07:36 15:35-16:11/36 17:00
14	06:08 06:30-07:19/49 20:52	06:35 06:57-06:63/6 20:23	07:03 08:03-08:59/56 19:36	07:32 17:45-17:54/9 18:48	07:06 15:28-16:01/33 17:10	07:36 15:36-16:12/36 17:01
15	06:08 06:30-07:18/48 20:51	06:36 06:58-06:64/6 20:21	07:04 08:03-08:59/56 19:34	07:33 17:42-17:57/15 18:46	07:07 15:27-16:01/34 17:10	07:37 15:36-16:12/36 17:01
16	06:09 06:31-07:18/47 20:51	06:36 06:59-06:65/6 20:20	07:05 08:02-08:59/57 19:33	07:34 17:39-17:59/20 18:45	07:08 15:27-16:03/36 17:09	07:38 15:37-16:13/36 17:01
17	06:10 06:32-07:19/47 20:50	06:37 07:00-07:06/6 20:19	07:06 08:02-08:59/57 19:31	07:35 17:37-18:01/24 18:44	07:10 15:27-16:03/36 17:08	07:38 15:37-16:13/36 17:01
18	06:11 06:32-07:18/46 20:50	06:38 07:01-07:07/6 20:17	07:07 08:01-08:59/58 19:29	07:36 17:36-18:02/26 18:42	07:11 15:26-16:04/38 17:07	07:39 15:38-16:14/36 17:02
19	06:11 06:33-07:18/45 20:49	06:39 07:02-07:08/6 20:16	07:08 08:01-08:59/58 19:28	07:37 17:34-18:02/28 18:41	07:12 15:26-16:04/38 17:07	07:40 15:38-16:13/35 17:02
20	06:12 06:34-07:18/44 20:48	06:40 07:03-07:09/6 20:15	07:09 08:01-08:59/58 19:26	07:38 17:34-18:04/30 18:39	07:13 15:26-16:05/39 17:06	07:40 15:39-16:14/35 17:03
21	06:13 06:35-07:18/43 20:48	06:41 07:04-07:10/6 20:13	07:10 08:01-08:58/57 19:25	07:40 17:33-18:04/31 18:38	07:14 15:26-16:06/40 17:05	07:41 15:39-16:14/35 17:03
22	06:14 06:36-07:18/42 20:47	06:42 07:05-07:11/6 20:12	07:11 08:00-08:57/57 19:23	07:41 17:32-18:04/32 18:36	07:15 15:26-16:06/40 17:05	07:41 15:40-16:15/35 17:03
23	06:15 06:36-07:17/41 20:46	06:43 07:06-07:12/6 20:10	07:12 08:00-08:56/56 19:21	07:42 17:32-18:04/32 18:35	07:16 15:26-16:06/40 17:04	07:42 15:40-16:15/35 17:04
24	06:16 06:37-07:17/40 20:45	06:44 07:07-07:13/6 20:09	07:13 08:01-08:55/54 19:20	07:43 17:31-18:04/33 18:34	07:17 15:26-16:07/41 17:04	07:42 15:41-16:16/35 17:04
25	06:16 06:38-07:17/39 20:44	06:45 07:08-07:14/6 20:07	07:14 08:01-08:55/54 19:18	06:44 16:31-17:04/33 17:32	07:18 15:26-16:07/41 17:03	07:43 15:41-16:17/36 17:05
26	06:17 06:39-07:16/37 20:44	06:46 07:09-07:15/6 20:06	07:15 08:01-08:54/53 19:16	06:45 16:31-17:04/33 17:31	07:20 15:26-16:07/41 17:03	07:43 15:41-16:17/36 17:06
27	06:18 06:40-07:16/36 20:43	06:47 07:10-07:16/6 20:04	07:16 08:02-08:53/51 19:15	06:46 16:32-17:04/32 17:30	07:21 15:27-16:07/40 17:02	07:43 15:42-16:18/36 17:06
28	06:19 06:41-07:15/34 20:42	06:48 07:11-07:17/6 20:03	07:16 08:03-08:51/48 19:13	06:47 16:32-17:04/32 17:29	07:22 15:27-16:08/41 17:02	07:44 15:42-16:18/36 17:07
29	06:20 06:41-07:14/33 20:41	06:49 07:12-07:18/6 20:01	07:17 08:03-08:50/47 19:11	06:48 16:32-17:03/31 17:27	07:23 15:28-16:09/41 17:01	07:44 15:43-16:19/36 17:08
30	06:21 06:42-07:13/31 20:40	06:50 08:28-08:43/15 20:00	07:18 08:04-08:49/45 19:10	06:49 16:32-17:02/30 17:26	07:24 15:28-16:09/41 17:01	07:44 15:43-16:19/36 17:08
31	06:22 06:43-07:12/29 20:39	06:50 08:24-08:46/22 19:58		06:50 16:33-17:01/28 17:25		07:45 15:44-16:21/37 17:09
Potential sun hours	455	425	374	347	301	292
Sum of minutes with flicker	1387	168	1505	678	1132	1143

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE02 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (2)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:45 16:32-16:45/13 17:10	07:33 08:19-09:20/61 17:43	06:59 08:05-09:30/85 18:15	07:10 19:20-19:26/6 19:47	06:26 20:17	05:59 20:45
2	07:45 16:32-16:45/13 17:11	07:32 08:18-09:21/63 17:44	06:57 08:06-09:30/84 18:16	07:08 19:17-19:28/11 19:48	06:25 20:18	05:59 20:46
3	07:45 16:32-16:46/14 17:12	07:31 08:17-09:22/65 17:46	06:56 08:06-09:29/83 18:18	07:07 19:14-19:28/14 19:49	06:24 20:19	05:58 20:46
4	07:45 16:32-16:47/15 17:13	07:30 08:16-09:23/67 17:47	06:54 08:06-09:28/82 18:19	07:05 19:12-19:29/17 19:50	06:23 20:20	05:58 20:47
5	07:45 16:32-16:48/16 17:14	07:29 08:15-09:25/70 17:48	06:53 08:06-09:27/81 18:20	07:04 19:11-19:30/19 19:51	06:21 20:21	05:58 20:48
6	07:45 16:32-16:49/17 17:15	07:28 08:14-09:26/72 17:49	06:51 08:07-09:26/79 18:21	07:02 19:09-19:31/22 19:52	06:20 20:22	05:57 20:48
7	07:45 16:31-16:49/18 17:15	07:27 08:14-09:27/73 17:50	06:50 08:07-09:25/78 18:22	07:01 19:08-19:32/24 19:53	06:19 20:23	05:57 20:49
8	07:45 16:31-16:50/19 17:16	07:26 08:13-09:28/75 17:51	06:48 08:08-09:24/76 18:23	06:59 19:07-19:33/26 19:54	06:18 20:24	05:57 20:50
9	07:45 16:31-16:51/20 17:17	07:25 08:12-09:29/77 17:53	06:47 08:08-09:22/74 18:24	06:58 19:07-19:34/27 19:55	06:17 20:25	05:57 20:50
10	07:45 16:32-16:52/20 17:18	07:24 08:12-09:30/78 17:54	06:45 08:09-09:22/73 18:25	06:56 19:06-19:35/29 19:56	06:16 20:26	05:56 20:51
11	07:45 16:32-16:53/21 17:19	07:23 08:11-09:31/80 17:55	06:44 08:09-09:20/71 18:26	06:54 19:06-19:36/30 19:57	06:15 20:27	05:56 20:51
12	07:44 16:31-16:53/22 17:20	07:21 08:10-09:30/80 17:56	06:42 08:09-09:18/69 18:27	06:53 19:05-19:37/32 19:58	06:14 20:28	05:56 20:52
13	07:44 16:32-16:54/22 17:21	07:20 08:10-09:31/81 17:57	06:40 08:11-09:17/66 18:28	06:51 19:05-19:38/33 19:59	06:13 20:29	05:56 20:52
14	07:44 16:33-16:55/22 17:23	07:19 08:09-09:32/83 17:59	06:39 08:11-09:14/63 18:29	06:50 19:05-19:39/34 20:00	06:12 20:30	05:56 20:53
15	07:44 16:32-16:55/23 17:24	07:18 08:09-09:33/84 18:00	06:37 08:13-09:13/60 18:30	06:48 19:05-19:40/35 20:01	06:11 20:31	05:56 20:53
16	07:43 16:33-16:56/23 17:25	07:17 08:08-09:32/84 18:01	06:36 08:13-09:11/58 18:31	06:47 19:05-19:39/34 20:02	06:10 20:32	05:56 20:53
17	07:43 16:33-16:56/23 17:26	07:15 08:08-09:33/85 18:02	06:34 08:14-09:08/54 18:32	06:45 19:05-19:38/33 20:03	06:09 20:33	05:56 20:54
18	07:42 16:34-16:57/23 17:27	07:14 08:08-09:33/85 18:03	06:32 08:16-09:06/50 18:33	06:44 19:05-19:37/32 20:04	06:08 20:34	05:56 20:54
19	07:42 16:33-16:56/23 17:28	07:13 08:08-09:34/86 18:04	06:31 08:17-09:03/46 18:34	06:43 19:06-19:36/30 20:05	06:07 20:34	05:56 20:54
20	07:41 16:35-16:57/22 17:29	07:11 08:07-09:33/86 18:05	06:29 08:20-09:01/41 18:35	06:41 19:07-19:34/27 20:06	06:07 20:35	05:56 20:55
21	07:41 16:35-16:57/22 17:30	07:10 08:07-09:33/86 18:07	06:28 08:22-08:57/35 18:36	06:40 19:08-19:33/25 20:07	06:06 20:36	05:57 20:55
22	07:40 16:35-16:56/21 17:31	07:09 08:06-09:33/87 18:08	06:26 08:24-08:53/29 18:37	06:38 19:10-19:32/22 20:08	06:05 20:37	05:57 20:55
23	07:40 16:36-16:57/21 17:33	07:07 08:06-09:33/87 18:09	06:24 08:29-08:49/20 18:38	06:37 19:11-19:29/18 20:09	06:04 20:38	05:57 20:55
24	07:39 16:37-16:56/19 17:34	07:06 08:06-09:33/87 18:10	06:23 08:31-09:04/33 18:39	06:35 19:14-19:26/12 20:10	06:04 20:39	05:57 20:56
25	07:38 16:38-16:55/17 17:35	07:04 08:06-09:32/86 18:11	06:21 08:33-09:07/38 18:40	06:34 20:11 20:11	06:03 20:40	05:58 20:56
26	07:38 16:40-16:55/15 17:36	07:03 08:06-09:32/86 18:12	06:20 08:34-09:10/42 18:41	06:33 20:12 20:12	06:02 20:40	05:58 20:56
27	07:37 16:41-16:54/13 17:37	07:02 08:05-09:31/86 18:13	06:18 08:35-09:12/46 18:42	06:31 20:13 20:13	06:02 20:41	05:58 20:56
28	07:36 16:43-16:52/9 17:38	07:00 08:06-09:31/85 18:14	06:16 08:36-09:14/50 18:43	06:30 20:14 20:14	06:01 20:42	05:59 20:56
29	07:35 08:23-09:15/52 17:40		07:15 08:37-09:15/52 19:44	06:29 20:15 20:15	06:01 20:43	05:59 20:56
30	07:35 08:22-09:17/55 17:41		07:13 08:38-09:17/55 19:45	06:28 20:16 20:16	06:00 20:44	05:59 20:56
31	07:34 08:20-09:18/58 17:42		07:12 08:39-09:18/58 19:46		06:00 20:44	
Potential sun hours	301	299	370	397	445	448
Sum of minutes with flicker	958	2225	1457	592	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE02 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (2)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	06:00 20:56	06:23 20:38	06:51 19:05-19:35/30 19:57	07:19 08:49-09:57/68 19:08	06:52 07:42-08:59/77 17:24	07:25 16:14-16:35/21 17:01
2	06:00 20:56	06:23 20:37	06:52 19:05-19:34/29 19:55	07:20 08:48-09:58/70 19:07	06:53 07:42-08:58/76 17:22	07:26 16:15-16:35/20 17:01
3	06:01 20:55	06:24 20:36	06:53 19:04-19:31/27 19:54	07:21 08:47-09:59/72 19:05	06:54 07:43-08:57/74 17:21	07:27 16:15-16:35/20 17:00
4	06:01 20:55	06:25 20:35	06:54 19:04-19:30/26 19:52	07:22 08:46-10:00/74 19:03	06:55 07:44-08:56/72 17:20	07:28 16:16-16:35/19 17:00
5	06:02 20:55	06:26 20:34	06:55 19:04-19:29/25 19:51	07:23 08:45-10:00/75 19:02	06:56 07:44-08:55/71 17:19	07:29 16:17-16:35/18 17:00
6	06:02 20:55	06:27 20:33	06:56 19:05-19:27/22 19:49	07:24 08:44-10:01/77 19:00	06:57 07:46-08:55/69 17:18	07:30 16:18-16:35/17 17:00
7	06:03 20:55	06:28 20:31	06:57 19:06-19:26/20 19:47	07:25 08:43-10:02/79 18:59	06:58 07:47-08:54/67 17:17	07:31 16:18-16:34/16 17:00
8	06:04 20:54	06:29 20:30	06:58 19:07-19:24/17 19:46	07:26 08:42-10:02/80 18:57	06:59 07:48-08:53/65 17:16	07:31 16:19-16:34/15 17:00
9	06:04 20:54	06:30 20:29	06:59 19:08-19:23/15 19:44	07:27 08:41-10:03/82 18:56	07:01 07:49-08:52/63 17:15	07:32 16:20-16:35/15 17:00
10	06:05 20:54	06:31 20:28	07:00 19:10-19:21/11 19:42	07:28 08:41-10:03/82 18:54	07:02 07:50-08:50/60 17:14	07:33 16:21-16:35/14 17:00
11	06:06 20:53	06:32 20:27	07:01 19:12-19:19/7 19:41	07:29 08:40-10:03/83 18:53	07:03 07:52-08:50/58 17:13	07:34 16:22-16:35/13 17:00
12	06:06 20:53	06:33 20:25	07:02 19:39	07:30 08:39-10:03/84 18:51	07:04 07:54-08:49/55 17:12	07:35 16:24-16:35/11 17:00
13	06:07 20:52	06:34 20:24	07:03 19:38	07:31 08:39-10:04/85 18:49	07:05 07:55-08:47/52 17:11	07:36 16:24-16:34/10 17:00
14	06:08 20:52	06:35 20:23	07:03 19:36	07:32 08:38-10:04/86 18:48	07:06 16:15-16:24/9 17:10	07:36 16:25-16:34/9 17:01
15	06:08 20:51	06:36 20:21	07:04 19:34	07:33 08:38-10:04/86 18:46	07:07 16:13-16:26/13 17:10	07:37 16:27-16:34/7 17:01
16	06:09 20:51	06:36 20:20	07:05 19:33	07:34 08:38-10:04/86 18:45	07:08 16:13-16:28/15 17:09	07:38 16:28-16:34/6 17:01
17	06:10 20:50	06:37 20:19	07:06 19:31	07:35 08:37-10:04/87 18:44	07:10 16:12-16:29/17 17:08	07:38 16:29-16:33/4 17:01
18	06:11 20:50	06:38 19:24-19:28/4 20:17	07:07 19:29	07:36 08:37-10:04/87 18:42	07:11 16:11-16:30/19 17:07	07:39 16:30-16:33/3 17:02
19	06:11 20:49	06:39 19:19-19:33/14 20:16	07:08 19:28	07:37 08:38-10:04/86 18:41	07:12 16:10-16:31/21 17:07	07:40 17:02
20	06:12 20:48	06:40 19:16-19:35/19 20:15	07:09 09:17-09:33/16 19:26	07:38 08:38-10:04/86 18:39	07:13 16:10-16:31/21 17:06	07:40 17:03
21	06:13 20:48	06:41 19:14-19:37/23 20:13	07:10 09:12-09:38/26 19:25	07:40 08:37-10:04/87 18:38	07:14 16:11-16:33/22 17:05	07:41 17:03
22	06:14 20:47	06:42 19:13-19:38/25 20:12	07:11 09:07-09:41/34 19:23	07:41 08:37-10:04/87 18:36	07:15 16:11-16:33/22 17:05	07:41 17:03
23	06:15 20:46	06:43 19:11-19:39/28 20:10	07:12 09:04-09:44/40 19:21	07:42 08:37-10:03/86 18:35	07:16 16:11-16:33/22 17:04	07:42 17:04
24	06:16 20:45	06:44 19:10-19:40/30 20:09	07:13 09:01-09:46/45 19:20	07:43 08:37-10:03/86 18:34	07:17 16:11-16:34/23 17:04	07:42 17:05
25	06:16 20:44	06:45 19:08-19:40/32 20:07	07:14 08:59-09:48/49 19:18	06:44 07:38-09:02/84 17:32	07:18 16:11-16:34/23 17:03	07:43 16:34-16:36/2 17:05
26	06:17 20:44	06:46 19:07-19:40/33 20:06	07:15 08:57-09:50/53 19:16	06:45 07:38-09:02/84 17:31	07:20 16:11-16:34/23 17:03	07:43 16:33-16:37/4 17:06
27	06:18 20:43	06:47 19:07-19:41/34 20:04	07:16 08:55-09:51/56 19:15	06:46 07:39-09:02/83 17:30	07:21 16:11-16:34/23 17:02	07:43 16:33-16:39/6 17:06
28	06:19 20:42	06:48 19:06-19:41/35 20:03	07:16 08:54-09:53/59 19:13	06:47 07:39-09:01/82 17:29	07:22 16:12-16:34/22 17:02	07:44 16:33-16:40/7 17:07
29	06:20 20:41	06:49 19:05-19:40/35 20:01	07:17 08:52-09:54/62 19:11	06:48 07:39-09:01/82 17:27	07:23 16:13-16:35/22 17:01	07:44 16:32-16:41/9 17:08
30	06:21 20:40	06:50 19:05-19:38/33 20:00	07:18 08:51-09:56/65 19:10	06:49 07:40-09:00/80 17:26	07:24 16:14-16:35/21 17:01	07:44 16:32-16:41/9 17:08
31	06:22 20:39	06:50 19:05-19:37/32 19:58		06:50 07:40-08:59/79 17:25		07:45 16:33-16:43/10 17:09
Potential sun hours	455	425	374	347	301	292
Sum of minutes with flicker	0	377	734	2535	1463	285

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
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SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE03 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (4)
 Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:45 17:10	07:33 16:53-17:17/24 17:43	06:59 18:15	07:10 07:36-08:01/25 19:47	06:26 20:17	05:59 19:54-20:12/18 20:45
2	07:45 17:11	07:32 16:52-17:17/25 17:44	06:57 18:16	07:08 07:37-08:01/24 19:48	06:25 20:18	05:59 19:53-20:12/19 20:46
3	07:45 17:12	07:31 16:52-17:17/25 17:45	06:56 18:18	07:07 07:38-07:59/21 19:49	06:24 20:19	05:58 19:53-20:13/20 20:46
4	07:45 17:13	07:30 16:52-17:18/26 17:47	06:54 18:19	07:05 07:38-07:56/18 19:50	06:23 20:20	05:58 19:53-20:14/21 20:47
5	07:45 17:14	07:29 16:52-17:18/26 17:48	06:53 18:20	07:04 07:41-07:54/13 19:51	06:21 20:21	05:57 19:53-20:14/21 20:48
6	07:45 17:15	07:28 16:53-17:18/25 17:49	06:51 18:21	07:02 07:44-07:50/6 19:52	06:20 20:22	05:57 19:53-20:14/21 20:48
7	07:45 17:15	07:27 16:53-17:18/25 17:50	06:50 17:48-17:57/9 18:22	07:01 19:53	06:19 20:23	05:57 19:53-20:15/22 20:49
8	07:45 17:16	07:26 16:54-17:18/24 17:51	06:48 17:45-18:00/15 18:23	06:59 19:54	06:18 20:24	05:57 19:53-20:15/22 20:50
9	07:45 17:17	07:25 16:54-17:18/24 17:53	06:47 17:42-18:01/19 18:24	06:57 19:55	06:17 20:25	05:56 19:53-20:16/23 20:50
10	07:45 17:18	07:24 16:55-17:17/22 17:54	06:45 17:40-18:02/22 18:25	06:56 19:56	06:16 20:26	05:56 19:54-20:16/22 20:51
11	07:45 17:19	07:22 16:57-17:16/19 17:55	06:44 17:40-18:03/23 18:26	06:54 19:57	06:15 20:27	05:56 19:54-20:16/22 20:51
12	07:44 17:20	07:21 16:57-17:14/17 17:56	06:42 17:38-18:03/25 18:27	06:53 19:58	06:14 20:28	05:56 19:53-20:16/23 20:52
13	07:44 17:21	07:20 16:59-17:13/14 17:57	06:40 17:38-18:04/26 18:28	06:51 19:59	06:13 20:29	05:56 19:53-20:16/23 20:52
14	07:44 17:22	07:19 17:02-17:10/8 17:58	06:39 17:37-18:04/27 18:29	06:50 20:00	06:12 20:30	05:56 19:53-20:16/23 20:53
15	07:44 17:24	07:18 18:00	06:37 17:36-18:03/27 18:30	06:48 20:01	06:11 20:31	05:56 19:53-20:17/24 20:53
16	07:43 17:25	07:16 18:01	06:36 17:37-18:04/27 18:31	06:47 20:02	06:10 20:32	05:56 19:55-20:18/23 20:53
17	07:43 17:26	07:15 18:02	06:34 17:36-18:03/27 18:32	06:45 20:03	06:09 20:33	05:56 19:55-20:18/23 20:54
18	07:42 17:27	07:14 18:03	06:32 17:37-18:02/25 18:33	06:44 20:04	06:08 20:33	05:56 06:47-06:51/4 20:54 19:55-20:18/23
19	07:42 17:28	07:13 18:04	06:31 17:37-18:01/24 18:34	06:42 20:05	06:07 20:34	05:56 06:46-06:51/5 20:54 19:55-20:18/23
20	07:41 17:29	07:11 18:05	06:29 17:37-17:59/22 18:35 06:48-06:59/11	06:41 20:06	06:06 20:35	05:56 06:46-06:52/6 20:55 19:55-20:18/23
21	07:41 17:30	07:10 18:06	06:28 17:39-17:58/19 18:36 06:46-07:01/15	06:40 20:07	06:06 20:36	05:57 06:46-06:52/6 20:55 19:55-20:18/23
22	07:40 17:31	07:09 18:08	06:26 17:40-17:56/16 18:37 06:44-07:02/18	06:38 20:08	06:05 20:37	05:57 06:47-06:53/6 20:55 19:55-20:18/23
23	07:40 17:33	07:07 18:09	06:24 17:43-17:54/11 18:38 06:43-07:04/21	06:37 20:09	06:04 20:38	05:57 06:47-06:52/5 20:55 19:56-20:19/23
24	07:39 17:34	07:06 18:10	06:23 06:41-07:04/23 18:39	06:35 20:10	06:04 20:39	05:57 06:47-06:52/5 20:55 19:56-20:19/23
25	07:38 17:01-17:05/4 17:35	07:04 18:11	06:21 06:39-07:04/25 18:40	06:34 20:11	06:03 20:40	05:57 06:48-06:51/3 20:56 19:56-20:19/23
26	07:38 16:58-17:09/11 17:36	07:03 18:12	06:20 06:38-07:05/27 18:41	06:33 20:12	06:02 20:00-20:05/5 20:40	05:58 19:57-20:20/23 20:56
27	07:37 16:57-17:12/15 17:37	07:02 18:13	06:18 06:36-07:04/28 18:42	06:31 20:13	06:02 19:58-20:07/9 20:41	05:58 19:56-20:20/24 20:56
28	07:36 16:56-17:13/17 17:38	07:00 18:14	06:16 06:36-07:05/29 18:43	06:30 20:14	06:01 19:57-20:09/12 20:42	05:59 19:56-20:19/23 20:56
29	07:35 16:55-17:14/19 17:40		07:15 07:36-08:04/28 19:44	06:29 20:15	06:00 19:55-20:09/14 20:43	05:59 19:57-20:20/23 20:56
30	07:35 16:54-17:15/21 17:41		07:13 07:35-08:03/28 19:45	06:27 20:16	06:00 19:55-20:11/16 20:44	05:59 19:57-20:20/23 20:56
31	07:34 16:53-17:16/23 17:42		07:12 07:36-08:03/27 19:46		05:59 19:54-20:11/17 20:44	
Potential sun hours	301	299	370	397	445	448
Sum of minutes with flicker	110	304	644	107	73	710

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE03 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (4)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	06:00 19:58-20:21/23 20:56	06:23 20:38	06:51 19:57	07:19 18:17-18:43/26 19:08	06:51 16:24-16:46/22 17:24	07:25 17:01
2	06:00 19:58-20:20/22 20:56	06:23 20:37	06:52 19:55	07:20 18:18-18:42/24 19:07	06:53 16:24-16:48/24 17:22	07:26 17:01
3	06:01 19:58-20:21/23 20:55	06:24 20:36	06:53 19:54	07:21 18:18-18:41/23 19:05	06:54 16:23-16:48/25 17:21	07:27 17:00
4	06:01 19:58-20:20/22 20:55	06:25 20:35	06:54 19:52	07:22 18:19-18:40/21 19:03	06:55 16:23-16:48/25 17:20	07:28 17:00
5	06:02 19:59-20:21/22 20:55	06:26 20:34	06:55 19:50	07:23 18:21-18:38/17 19:02	06:56 16:22-16:48/26 17:19	07:29 17:00
6	06:02 19:59-20:20/21 20:55	06:27 20:33	06:56 07:41-07:45/4 19:49	07:24 18:22-18:35/13 19:00	06:57 16:22-16:48/26 17:18	07:30 17:00
7	06:03 20:00-20:21/21 20:55	06:28 20:31	06:57 07:36-07:49/13 19:47	07:25 18:27-18:30/3 18:59	06:58 16:23-16:49/26 17:17	07:30 17:00
8	06:04 19:59-20:20/21 20:54	06:29 20:30	06:58 07:34-07:51/17 19:46	07:26 18:57	06:59 16:23-16:48/25 17:16	07:31 17:00
9	06:04 20:00-20:20/20 20:54	06:30 20:29	06:59 07:32-07:53/21 19:44	07:27 18:56	07:00 16:23-16:48/25 17:15	07:32 17:00
10	06:05 20:01-20:20/19 20:54	06:31 20:28	07:00 07:30-07:54/24 19:42	07:28 18:54	07:02 16:24-16:47/23 17:14	07:33 17:00
11	06:06 20:01-20:20/19 20:53	06:32 20:27	07:01 07:29-07:54/25 19:41	07:29 18:52	07:03 16:24-16:47/23 17:13	07:34 17:00
12	06:06 20:02-20:19/17 20:53	06:33 20:25	07:02 07:27-07:54/27 19:39	07:30 18:51	07:04 16:26-16:47/21 17:12	07:35 17:00
13	06:07 20:03-20:19/16 20:52	06:34 20:24	07:02 07:27-07:54/27 19:38	07:31 18:49	07:05 16:27-16:46/19 17:11	07:36 17:00
14	06:08 20:03-20:18/15 20:52	06:35 20:23	07:03 07:26-07:54/28 19:36	07:32 18:48	07:06 16:28-16:45/17 17:10	07:36 17:01
15	06:08 20:05-20:18/13 20:51	06:35 20:21	07:04 07:26-07:54/28 19:34	07:33 18:46	07:07 16:29-16:43/14 17:10	07:37 17:01
16	06:09 20:06-20:17/11 20:51	06:36 20:20	07:05 07:25-07:54/29 19:33	07:34 18:45	07:08 16:32-16:43/11 17:09	07:38 17:01
17	06:10 20:08-20:15/7 20:50	06:37 20:19	07:06 07:26-07:53/27 19:31	07:35 18:44	07:10 16:35-16:39/4 17:08	07:38 17:01
18	06:11 20:50	06:38 20:17	07:07 07:27-07:52/25 19:29	07:36 18:42	07:11 17:07	07:39 17:02
19	06:11 20:49	06:39 20:16	07:08 07:28-07:52/24 19:28	07:37 18:41	07:12 17:07	07:40 17:02
20	06:12 20:48	06:40 20:15	07:09 18:31-18:39/8 19:26	07:38 18:39	07:13 17:06	07:40 17:02
21	06:13 20:48	06:41 20:13	07:10 18:26-18:41/15 19:24	07:39 18:38	07:14 17:05	07:41 17:03
22	06:14 20:47	06:42 20:12	07:11 18:24-18:42/18 19:23	07:41 18:36	07:15 17:05	07:41 17:03
23	06:15 20:46	06:43 20:10	07:12 18:22-18:44/22 19:21	07:42 18:35	07:16 17:04	07:42 17:04
24	06:15 20:45	06:44 20:09	07:13 18:21-18:44/23 19:20	07:43 18:34	07:17 17:04	07:42 17:04
25	06:16 20:44	06:45 20:07	07:14 18:20-18:45/25 19:18	06:44 17:32	07:18 17:03	07:43 17:05
26	06:17 20:44	06:46 20:06	07:15 18:19-18:45/26 19:16	06:45 17:31	07:20 17:03	07:43 17:06
27	06:18 20:43	06:47 20:04	07:16 18:18-18:45/27 19:15	06:46 17:30	07:21 17:02	07:43 17:06
28	06:19 20:42	06:48 20:03	07:16 18:18-18:45/27 19:13	06:47 16:31-16:41/10 17:28	07:22 17:02	07:44 17:07
29	06:20 20:41	06:49 20:01	07:17 18:17-18:44/27 19:11	06:48 16:28-16:43/15 17:27	07:23 17:01	07:44 17:08
30	06:21 20:40	06:50 20:00	07:18 18:17-18:44/27 19:10	06:49 16:27-16:44/17 17:26	07:24 17:01	07:44 17:08
31	06:22 20:39	06:50 19:58		06:50 16:25-16:45/20 17:25		07:45 17:09
Potential sun hours	455	425	374	347	301	292
Sum of minutes with flicker	312	0	640	189	356	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

Project:

Eolico_Selegas_2021_12_21

Licensed user:

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IT-09124 Cagliari
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Giuseppe Frongia / direttore@iatprogetti.it
Calculated:
23/12/2021 14:51/3.4.415

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE04 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (5)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:45 15:44-16:33/49 17:10	07:33 16:02-16:36/34 07:56-08:16/20 17:43 16:44-17:04/20	06:59 17:30-17:49/19 18:15	07:10 18:21-19:22/61 19:47	06:26 20:17	05:59 20:45
2	07:45 15:45-16:34/49 17:11	07:32 16:04-16:34/30 07:56-08:16/20 17:44 16:45-17:03/18	06:57 17:33-17:49/16 18:16	07:08 18:20-19:20/60 19:48	06:25 20:18	05:59 20:46
3	07:45 15:45-16:34/49 17:12	07:31 16:06-16:33/27 07:56-08:16/20 17:45 16:47-17:01/14	06:56 17:34-17:46/12 18:17	07:07 18:20-19:18/58 19:49	06:24 20:19	05:58 20:46
4	07:45 15:45-16:35/50 17:13	07:30 16:08-16:31/23 07:56-08:16/20 17:47 16:50-16:59/9	06:54 17:37-17:44/7 18:19	07:05 18:19-19:17/58 19:50	06:23 20:20	05:58 20:47
5	07:45 15:46-16:35/49 17:14	07:29 16:11-16:28/17 17:48 07:57-08:16/19	06:53 18:20	07:04 18:19-19:17/58 19:51	06:21 20:21	05:57 20:48
6	07:45 15:46-16:36/50 17:14	07:28 16:16-16:24/8 17:49 07:57-08:16/19	06:51 18:21	07:02 18:18-19:17/59 19:52	06:20 20:22	05:57 20:48
7	07:45 15:46-16:36/50 17:15 16:44-16:48/4	07:27 07:58-08:15/17 17:50	06:50 18:22	07:01 18:18-19:17/59 19:53	06:19 20:23	05:57 20:49
8	07:45 15:46-16:36/50 17:16 16:42-16:51/9	07:26 07:59-08:14/15 17:51	06:48 18:23	06:59 18:18-19:16/58 19:54	06:18 20:24	05:57 20:50
9	07:45 15:47-16:37/50 17:17 16:41-16:52/11	07:25 08:01-08:13/12 17:53	06:47 18:24	06:57 18:18-19:17/59 19:55	06:17 20:25	05:56 20:50
10	07:45 15:47-16:38/51 17:18 16:41-16:53/12	07:24 08:04-08:11/7 17:54	06:45 18:25	06:56 18:18-19:16/58 19:56	06:16 20:26	05:56 20:51
11	07:45 15:48-16:38/50 17:19 16:40-16:55/15	07:22 17:55	06:43 18:02-18:05/3 18:26	06:54 18:17-19:15/58 19:57	06:15 20:27	05:56 20:51
12	07:44 15:48-16:38/50 17:20 16:39-16:55/16	07:21 17:56	06:42 17:59-18:06/7 18:27	06:53 18:18-19:15/57 19:58	06:14 20:28	05:56 20:52
13	07:44 15:48-16:57/69 17:21	07:20 17:57	06:40 17:57-18:08/11 18:28	06:51 18:18-19:13/55 19:59	06:13 20:29	05:56 20:52
14	07:44 15:49-16:58/69 17:22	07:19 17:58	06:39 17:56-18:08/12 18:29	06:50 18:18-19:13/55 20:00	06:12 20:30	05:56 20:53
15	07:44 15:49-16:59/70 17:24	07:18 18:00	06:37 17:55-18:09/14 18:30	06:48 18:18-19:12/54 20:01	06:11 20:31	05:56 20:53
16	07:43 15:50-17:00/70 17:25	07:16 17:33-17:38/5 18:01	06:36 17:55-18:11/16 18:31	06:47 18:19-19:11/52 20:02	06:10 20:32	05:56 20:53
17	07:43 15:50-17:01/71 17:26	07:15 17:31-17:40/9 18:02	06:34 17:54-18:11/17 18:32	06:45 18:20-19:11/51 20:03	06:09 20:33	05:56 20:54
18	07:42 15:51-17:03/72 17:27	07:14 17:29-17:42/13 18:03	06:32 17:54-18:13/19 18:33	06:44 18:20-19:09/49 20:04	06:08 20:33	05:56 20:54
19	07:42 15:51-17:03/72 17:28	07:13 17:27-17:42/15 18:04	06:31 17:54-18:14/20 18:34	06:42 18:22-19:09/47 20:05	06:07 20:34	05:56 20:54
20	07:41 15:52-17:05/73 17:29	07:11 17:27-17:44/17 18:05	06:29 17:44-18:14/30 18:35	06:41 18:22-19:07/45 20:06	06:06 20:35	05:56 20:55
21	07:41 15:52-17:05/73 17:30	07:10 17:27-17:45/18 18:06	06:28 17:40-18:16/36 18:36	06:40 18:23-19:06/43 20:07	06:06 20:36	05:56 20:55
22	07:40 15:52-17:05/73 17:31	07:09 17:26-17:46/20 18:08	06:26 17:37-18:16/39 18:37	06:38 18:25-19:05/40 20:08	06:05 20:37	05:57 20:55
23	07:40 15:54-17:06/72 17:32	07:07 17:26-17:47/21 18:09	06:24 17:35-18:18/43 18:38	06:37 18:25-19:02/37 20:09	06:04 20:38	05:57 20:55
24	07:39 15:54-17:06/72 17:34	07:06 17:25-17:48/23 18:10	06:23 17:32-18:19/47 18:39	06:35 18:27-19:01/34 20:10	06:03 20:39	05:57 20:55
25	07:38 15:55-17:06/71 17:35 08:01-08:08/7	07:04 17:26-17:50/24 18:11	06:21 17:30-18:19/49 18:40	06:34 18:29-18:59/30 20:11	06:03 20:40	05:57 20:56
26	07:38 15:55-17:06/71 17:36 08:00-08:11/11	07:03 17:27-17:51/24 18:12	06:20 17:28-18:21/53 18:41	06:33 18:31-18:56/25 20:12	06:02 20:40	05:58 20:56
27	07:37 15:57-17:07/70 17:37 07:59-08:12/13	07:02 17:27-17:51/24 18:13	06:18 17:27-18:21/54 18:42	06:31 18:34-18:53/19 20:13	06:02 20:41	05:58 20:56
28	07:36 15:58-16:39/41 07:58-08:13/15 17:38 16:41-17:06/25	07:00 17:29-17:51/22 18:14	06:16 17:25-18:22/57 18:43	06:30 18:40-18:48/8 20:14	06:01 20:42	05:58 20:56
29	07:35 15:59-16:39/40 07:57-08:14/17 17:39 16:41-17:06/25		07:15 18:24-19:24/60 19:44	06:29 20:15	06:00 20:43	05:59 20:56
30	07:34 16:00-16:38/38 07:56-08:15/19 17:41 16:42-17:05/23		07:13 18:23-19:24/61 19:45	06:27 20:16	06:00 20:44	05:59 20:56
31	07:34 16:01-16:37/36 07:56-08:16/20 17:42 16:43-17:05/22		07:12 18:22-19:24/62 19:46		05:59 20:44	
Potential sun hours	301	299	370	397	445	448
Sum of minutes with flicker	2084	604	764	1347	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE04 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (5)
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	06:00 20:56	06:22 20:38	06:51 18:17-19:15/58 19:57	07:19 18:37-18:46/9 19:08	06:51 07:33-07:41/8 17:24	07:25 15:30-16:20/50 17:01 16:22-16:37/15
2	06:00 20:56	06:23 20:37	06:52 18:16-19:14/58 19:55	07:20 18:39-18:45/6 19:07	06:53 07:31-07:43/12 17:22	07:26 15:30-16:21/51 17:01 16:24-16:37/13
3	06:01 20:55	06:24 20:36	06:53 18:15-19:14/59 19:54	07:21 19:05 19:05	06:54 07:29-07:44/15 17:21	07:27 15:31-16:21/50 17:00 16:25-16:36/11
4	06:01 20:55	06:25 20:35	06:54 18:15-19:13/58 19:52	07:22 19:03 19:03	06:55 07:28-07:45/17 17:20	07:28 15:31-16:21/50 17:00 16:27-16:36/9
5	06:02 20:55	06:26 20:34	06:55 18:15-19:13/58 19:50	07:23 19:02 19:02	06:56 15:45-15:55/10 17:19 07:27-07:46/19	07:29 15:32-16:22/50 17:00 16:29-16:35/6
6	06:02 20:55	06:27 20:32	06:56 18:14-19:13/59 19:49	07:24 19:00 19:00	06:57 15:41-15:59/18 17:18 07:28-07:47/19	07:30 15:31-16:21/50 17:00
7	06:03 20:55	06:28 20:31	06:57 18:14-19:13/59 19:47	07:25 18:59 18:59	06:58 15:39-16:02/23 07:27-07:47/20 17:17 16:20-16:30/10	07:30 15:32-16:22/50 17:00
8	06:04 20:54	06:29 20:30	06:58 18:14-19:12/58 19:46	07:26 18:57 18:57	06:59 15:37-16:04/27 07:27-07:47/20 17:16 16:18-16:32/14	07:31 15:32-16:22/50 17:00
9	06:04 20:54	06:30 20:29	06:59 18:14-19:12/58 19:44	07:27 18:56 18:56	07:00 15:35-16:05/30 07:27-07:47/20 17:15 16:16-16:34/18	07:32 15:33-16:22/49 17:00
10	06:05 20:54	06:31 20:28	07:00 18:14-19:13/59 19:42	07:28 18:54 18:54	07:02 15:33-16:07/34 07:27-07:47/20 17:14 16:15-16:35/20	07:33 15:34-16:23/49 17:00
11	06:05 20:53	06:32 20:26	07:01 18:13-19:14/61 19:41	07:29 18:52 18:52	07:03 15:32-16:08/36 07:28-07:47/19 17:13 16:14-16:36/22	07:34 15:34-16:23/49 17:00
12	06:06 20:53	06:33 20:25	07:01 18:13-19:15/62 19:39	07:30 18:51 18:51	07:04 15:32-16:10/38 07:28-07:47/19 17:12 16:14-16:37/23	07:35 15:35-16:24/49 17:00
13	06:07 20:52	06:34 20:24	07:02 18:14-19:15/61 19:38	07:31 18:49 18:49	07:05 15:31-16:11/40 07:29-07:46/17 17:11 16:13-16:38/25	07:35 15:35-16:24/49 17:00
14	06:08 20:52	06:35 20:23	07:03 18:14-19:14/60 19:36	07:32 18:48 18:48	07:06 15:30-16:11/41 07:30-07:45/15 17:10 16:13-16:38/25	07:36 09:20-09:26/6 17:00 15:36-16:24/48
15	06:08 20:51	06:35 18:45-18:56/11 20:21	07:04 18:15-19:12/57 19:34	07:33 18:46 18:46	07:07 15:29-16:39/70 17:10 07:31-07:44/13	07:37 09:19-09:28/9 17:01 15:37-16:25/48
16	06:09 20:51	06:36 18:40-19:00/20 20:20	07:05 18:16-19:11/55 19:33	07:34 18:45 18:45	07:08 15:29-16:40/71 17:09 07:33-07:44/11	07:38 09:19-09:30/11 17:01 15:36-16:25/49
17	06:10 20:50	06:37 18:37-19:03/26 20:19	07:06 18:16-19:09/53 19:31	07:35 18:43 18:43	07:10 15:29-16:40/71 17:08 07:35-07:42/7	07:38 09:18-09:30/12 17:01 15:37-16:25/48
18	06:11 20:50	06:38 18:35-19:05/30 20:17	07:07 18:18-19:08/50 19:29	07:36 18:42 18:42	07:11 15:28-16:40/72 17:07	07:39 09:19-09:31/12 17:02 15:38-16:26/48
19	06:11 20:49	06:39 18:33-19:07/34 20:16	07:08 18:19-19:06/47 19:28	07:37 18:41 18:41	07:12 15:28-16:40/72 17:07	07:40 09:18-09:32/14 17:02 15:38-16:26/48
20	06:12 20:48	06:40 18:31-19:08/37 20:15	07:09 18:20-19:04/44 19:26	07:38 18:39 18:39	07:13 15:27-16:40/73 17:06	07:40 09:19-09:33/14 17:02 15:39-16:27/48
21	06:13 20:47	06:41 18:29-19:10/41 20:13	07:10 18:21-19:02/41 19:24	07:39 18:38 18:38	07:14 15:27-16:40/73 17:05	07:41 09:19-09:33/14 17:03 15:39-16:27/48
22	06:14 20:47	06:42 18:28-19:11/43 20:12	07:11 18:24-19:01/37 19:23	07:41 18:36 18:36	07:15 15:28-16:41/73 17:05	07:41 09:20-09:34/14 17:03 15:40-16:28/48
23	06:15 20:46	06:43 18:27-19:12/45 20:10	07:12 18:27-18:59/32 19:21	07:42 18:35 18:35	07:16 15:28-16:40/72 17:04	07:42 09:20-09:34/14 17:04 15:40-16:28/48
24	06:15 20:45	06:44 18:24-19:12/48 20:09	07:13 18:35-18:57/22 19:20	07:43 18:34 18:34	07:17 15:28-16:40/72 17:04	07:42 09:21-09:35/14 17:04 15:41-16:29/48
25	06:16 20:44	06:45 18:23-19:12/49 20:07	07:14 18:37-18:56/19 19:18	06:44 17:01-17:09/8 17:32	07:18 15:28-16:39/71 17:03	07:43 09:22-09:35/13 17:05 15:41-16:29/48
26	06:17 20:44	06:46 18:22-19:13/51 20:06	07:15 18:36-18:54/18 19:16	06:45 17:04-17:08/4 17:31	07:19 15:28-16:38/70 17:03	07:43 09:22-09:34/12 17:06 15:41-16:29/48
27	06:18 20:43	06:47 18:21-19:13/52 20:04	07:15 18:36-18:53/17 19:15	06:46 17:30 17:30	07:21 15:28-16:38/70 17:02	07:43 09:24-09:35/11 17:06 15:42-16:30/48
28	06:19 20:42	06:48 18:20-19:14/54 20:03	07:16 18:36-18:51/15 19:13	06:47 17:28 17:28	07:22 15:28-16:37/69 17:02	07:44 09:25-09:34/9 17:07 15:42-16:31/49
29	06:20 20:41	06:49 18:19-19:14/55 20:01	07:17 18:36-18:49/13 19:11	06:48 17:27 17:27	07:23 15:28-16:37/69 17:01	07:44 09:26-09:33/7 17:08 15:43-16:31/48
30	06:21 20:40	06:49 18:19-19:14/55 20:00	07:18 18:37-18:48/11 19:10	06:49 17:26 17:26	07:24 15:30-16:20/50 17:01 16:21-16:37/16	07:44 09:29-09:31/2 17:08 15:43-16:31/48
31	06:22 20:39	06:50 18:18-19:15/57 19:58		06:50 17:25 17:25		07:45 15:43-16:32/49 17:09
Potential sun hours	455	425	374	347	301	292
Sum of minutes with flicker	0	708	1359	310	1859	1755

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE05 - Siemens Gamesa SG 6.0-170 6000 170.0 !0! hub: 115,0 m (TOT: 200,0 m) (6)
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:45 15:42-16:31/49 17:10	07:33 15:50-16:44/54 17:43 16:52-17:06/14	06:59 17:23-17:34/11 18:15 17:35-17:54/19	07:10 19:04-19:23/19 19:47 07:28-07:47/19	06:26 07:14-07:32/18 20:17	05:59 19:37-20:00/23 20:45 06:32-07:04/32
2	07:45 15:42-16:31/49 17:11	07:32 15:50-16:43/53 17:44 16:54-17:04/10	06:57 17:35-17:56/21 18:16	07:08 19:04-19:22/18 19:48 07:27-07:49/22	06:25 07:18-07:28/10 20:18	05:59 19:37-20:00/23 20:46 06:33-07:05/32
3	07:45 15:43-16:32/49 17:12	07:31 15:51-16:43/52 17:45 16:57-17:01/4	06:56 17:34-17:56/22 18:17	07:07 19:05-19:22/17 19:49 07:25-07:50/25	06:24 20:19	05:58 20:05-20:13/8 06:32-07:04/32 20:46 19:38-20:00/22
4	07:45 15:43-16:33/50 17:13	07:30 15:52-16:43/51 17:47	06:54 17:34-17:57/23 18:19	07:05 19:05-19:20/15 19:50 07:23-07:50/27	06:23 20:20	05:58 20:04-20:15/11 06:33-07:04/31 20:47 19:38-20:00/22
5	07:45 15:43-16:34/51 17:14	07:29 15:53-16:42/49 17:48	06:53 17:34-17:56/22 18:20	07:04 19:07-19:19/12 19:51 07:22-07:51/29	06:21 20:21	05:57 20:02-20:16/14 06:33-07:05/32 20:48 19:38-19:59/21
6	07:45 15:43-16:34/51 17:14	07:28 15:54-16:41/47 17:49	06:51 17:35-17:56/21 18:21	07:02 19:09-19:15/6 19:52 07:20-07:52/32	06:20 20:22	05:57 20:02-20:17/15 06:33-07:04/31 20:48 19:39-19:59/20
7	07:45 15:42-16:34/52 17:15	07:27 15:55-16:41/46 17:50	06:50 17:35-17:54/19 18:22	07:01 07:19-07:53/34 19:53	06:19 20:23	05:57 20:02-20:19/17 06:33-07:05/32 20:49 19:40-19:59/19 06:22-06:27/5
8	07:45 15:43-16:35/52 17:16	07:26 15:56-16:40/44 17:51	06:48 17:36-17:52/16 18:23	06:59 07:17-07:52/35 19:54	06:18 19:44-19:50/6 20:24	05:57 20:01-20:20/19 06:34-07:05/31 20:50 19:41-19:59/18 06:21-06:29/8
9	07:45 15:43-16:36/53 17:17	07:25 15:58-16:39/41 17:53	06:47 17:39-17:51/12 18:24	06:57 07:16-07:53/37 19:55	06:17 19:41-19:53/12 20:25	05:56 20:01-20:20/19 06:34-07:05/31 20:50 19:42-19:58/16 06:20-06:30/10
10	07:45 15:43-16:37/54 17:18	07:24 16:00-16:38/38 17:54	06:45 17:58-18:04/6 18:25	06:56 07:14-07:53/39 19:56	19:39-19:55/16 20:26	05:56 20:01-20:21/20 06:34-07:05/31 20:51 19:42-19:58/16 06:20-06:31/11
11	07:45 15:44-16:38/54 17:19	07:22 16:01-16:37/36 17:55	06:43 17:56-18:05/9 18:26	06:54 07:13-07:53/40 19:57	06:15 19:37-19:56/19 20:27	05:56 20:00-20:21/21 06:35-07:06/31 20:51 19:42-19:57/15 06:20-06:32/12
12	07:44 15:43-16:38/55 17:20	07:21 16:03-16:34/31 17:56 17:28-17:32/4	06:42 17:53-18:06/13 18:27	06:53 07:11-07:53/42 19:58	06:14 19:36-19:57/21 20:28	05:56 20:00-20:21/21 06:35-07:06/31 20:52 19:43-19:57/14 06:20-06:32/12
13	07:44 15:44-16:39/55 17:21	07:20 16:05-16:32/27 17:57 17:24-17:35/11	06:40 17:53-18:08/15 18:28	06:51 07:10-07:53/43 19:59	06:13 19:35-19:58/23 20:29	05:56 20:00-20:22/22 06:35-07:06/31 20:52 19:44-19:57/13 06:20-06:33/13
14	07:44 15:44-16:40/56 17:22	07:19 16:08-16:30/22 17:58 17:22-17:36/14	06:39 17:52-18:08/16 18:29	06:50 07:08-07:52/44 20:00	06:12 19:35-19:59/24 20:30	05:56 20:00-20:22/22 06:36-07:06/30 20:53 19:44-19:56/12 06:19-06:33/14
15	07:43 15:44-16:40/56 17:24	07:18 16:13-16:26/13 18:00 17:21-17:38/17	06:37 17:51-18:09/18 18:30	06:48 07:07-07:52/45 20:01	06:11 19:34-19:59/25 20:31	05:56 20:00-20:23/23 06:36-07:06/30 20:53 19:45-19:56/11 06:19-06:34/15
16	07:43 15:44-16:41/57 17:25	07:16 17:19-17:38/19 18:01	06:36 17:51-18:10/19 18:31	06:47 07:05-07:51/46 20:02	06:10 19:34-20:00/26 20:32	05:56 20:00-20:23/23 06:36-07:06/30 20:53 19:46-19:56/10 06:19-06:34/15
17	07:43 15:44-16:41/57 17:26	07:15 17:18-17:40/22 18:02	06:34 17:51-18:09/18 18:32	06:45 07:04-07:51/47 20:03	06:09 19:34-20:01/27 20:33	05:56 20:01-20:24/23 06:36-07:06/30 20:54 19:47-19:57/10 06:19-06:34/15
18	07:42 15:45-16:42/57 17:27	07:14 17:18-17:42/24 18:03	06:32 17:51-18:09/18 18:33	06:44 07:02-07:50/48 20:04	06:08 19:33-20:01/28 20:33	05:56 20:01-20:25/24 06:36-07:07/31 20:54 19:47-19:57/10 06:19-06:35/16
19	07:42 15:45-16:42/57 17:28	07:13 17:17-17:42/25 18:04	06:31 17:52-18:08/16 18:34	06:42 07:02-07:50/48 20:05	06:07 19:33-20:01/28 20:34	05:56 20:01-20:25/24 06:36-07:07/31 20:54 19:48-19:56/8 06:19-06:35/16
20	07:41 15:45-16:43/58 17:29	07:11 17:17-17:44/27 18:05	06:29 17:52-18:06/14 18:35	06:41 07:02-07:49/47 20:06	06:06 19:33-20:01/28 20:35	05:56 20:01-20:25/24 06:36-07:07/31 20:54 19:48-19:56/8 06:19-06:35/16
21	07:41 15:45-16:43/58 17:30	07:10 17:17-17:45/28 18:06	06:28 17:55-18:04/9 18:36	06:40 07:03-07:48/45 20:07	06:06 19:33-20:01/28 20:36	05:56 20:01-20:25/24 06:36-07:07/31 20:55 19:48-19:56/8 06:19-06:35/16
22	07:40 15:45-16:43/58 17:31	07:09 17:16-17:45/29 18:08	06:26 18:37	06:38 07:03-07:48/45 20:08	06:05 19:33-20:01/28 20:37	05:57 20:01-20:25/24 06:37-07:08/31 20:55 19:48-19:56/8 06:20-06:36/16
23	07:40 15:46-16:44/58 17:32	07:07 17:17-17:45/28 18:09	06:24 18:38	06:37 07:03-07:46/43 20:09	06:04 19:33-20:01/28 20:38	05:57 20:02-20:26/24 06:37-07:08/31 20:55 19:49-19:57/8 06:20-06:36/16
24	07:39 15:46-16:44/58 17:34	07:06 17:17-17:48/31 18:10	06:23 18:39	06:35 07:04-07:45/41 20:10	06:03 19:34-20:02/28 20:39	05:57 20:02-20:26/24 06:37-07:08/31 20:55 19:49-19:58/9 06:20-06:36/16
25	07:38 15:46-16:44/58 17:35	07:04 17:18-17:50/32 18:11	06:21 18:12-18:19/7 18:40	06:34 07:05-07:44/39 20:11	06:03 19:34-20:01/27 20:40	05:57 20:02-20:26/24 06:37-07:07/30 20:56 19:48-19:58/10 06:20-06:36/16
26	07:38 15:46-16:44/58 17:36	07:03 17:19-17:51/32 18:12	06:20 18:10-18:21/11 18:41	06:33 07:06-07:42/36 20:12	06:02 19:34-20:02/28 20:40	05:58 20:03-20:26/23 06:38-07:08/30 20:56 19:49-19:59/10 06:21-06:36/15
27	07:37 15:48-16:45/57 17:37	07:02 17:19-17:52/33 18:13	06:18 18:07-18:21/14 18:42	06:31 07:07-07:41/34 20:13	06:02 19:34-20:01/27 20:41	05:58 20:03-20:26/23 06:38-07:08/30 20:56 19:48-19:59/11 06:21-06:36/15
28	07:36 15:48-16:44/56 17:38	07:00 17:21-17:53/32 18:14	06:16 18:06-18:22/16 18:43	06:30 07:09-07:40/31 20:14	06:01 19:35-20:01/26 20:42	05:58 20:03-20:26/23 06:38-07:08/30 20:56 19:48-19:59/11 06:21-06:36/15
29	07:35 15:48-16:44/56 17:39	07:00 19:35-20:01/26 19:44	07:15 19:05-19:24/19 07:33-07:39/6	06:29 07:11-07:38/27 20:15	06:00 19:35-20:01/26 20:43	05:59 20:04-20:26/22 06:38-07:09/31 20:56 19:48-20:01/13 06:22-06:36/14
30	07:34 15:49-16:44/55 17:41	07:13 19:04-19:24/20 19:45	07:13 19:04-19:24/20 19:45	06:27 07:12-07:35/23 20:16	06:00 19:36-20:01/25 20:43	05:59 20:04-20:26/22 06:38-07:09/31 20:56 19:47-20:01/14 06:23-06:36/13
31	07:34 15:49-16:44/55 17:42	07:12 19:04-19:24/20 19:46	07:12 19:04-19:24/20 19:46	07:12 19:04-19:24/20 19:46	05:59 19:36-20:00/24 20:44	20:56 19:47-20:01/14 06:23-06:36/13 20:44 06:32-07:03/31
Potential sun hours	301	299	370	397	445	448
Sum of minutes with flicker	2009	1040	496	1200	1041	2253

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE05 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)
Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	06:00 20:05-20:26/21 06:39-07:10/31 20:56 19:48-20:02/14 06:24-06:36/12	06:22 19:47-20:07/20 20:38	06:51 07:12-07:52/40 19:57	07:19 18:33-18:46/13 19:08	06:51 15:28-16:07/39 17:24	07:25 15:26-16:20/54 17:01	
2	06:00 20:05-20:26/21 06:38-07:10/32 20:56 19:47-20:02/15 06:24-06:35/11	06:23 19:49-20:06/17 20:37	06:52 07:13-07:52/39 19:55	07:20 18:33-18:45/12 19:07	06:53 15:27-16:09/42 17:22	07:26 15:27-16:20/53 17:01	
3	06:01 20:06-20:26/20 06:39-07:10/31 20:55 19:47-20:03/16 06:25-06:35/10	06:24 19:50-20:05/15 20:36	06:53 07:13-07:50/37 19:54	07:21 18:35-18:43/8 19:05	06:54 15:26-16:10/44 17:21	07:27 15:27-16:20/53 17:00	
4	06:01 20:06-20:25/19 06:39-07:10/31 20:55 19:46-20:04/18 06:26-06:34/8	06:25 19:52-20:03/11 20:35	06:54 07:14-07:49/35 19:52	07:22 18:18-18:27/9 19:03	06:55 15:25-16:11/46 17:20	07:28 15:28-16:20/52 17:00	
5	06:02 20:07-20:25/18 06:39-07:11/32 20:55 19:46-20:05/19 06:27-06:34/7	06:26 20:34	06:55 07:15-07:49/34 19:50	07:23 18:15-18:29/14 19:02	06:56 15:24-16:11/47 17:19	07:29 15:29-16:20/51 17:00	
6	06:02 20:08-20:24/16 06:39-07:10/31 20:55 19:46-20:05/19 06:29-06:31/2	06:27 20:32	06:56 19:05-19:11/6 19:49	07:24 18:13-18:30/17 19:00	06:57 15:23-16:12/49 17:18	07:30 15:28-16:19/51 17:00	
7	06:03 20:09-20:24/15 06:39-07:11/32 20:55 19:46-20:06/20	06:28 20:31	06:57 19:02-19:14/12 19:47	07:25 18:11-18:31/20 18:59	06:58 15:23-16:13/50 17:17	07:30 15:29-16:20/51 17:00	
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9	06:04 20:12-20:21/9 06:40-07:11/31 20:54 19:45-20:07/22	06:30 20:29	06:59 18:59-19:16/17 19:44	07:27 18:09-18:32/23 18:56	07:00 15:21-16:14/53 17:15	07:32 15:31-16:20/49 17:00	
10	06:05 20:15-20:20/5 06:40-07:12/32 20:54 19:45-20:08/23	06:31 20:28	07:00 18:57-19:15/18 19:42	07:28 18:09-18:32/23 18:54	07:02 15:20-16:15/55 17:14	07:33 15:31-16:21/50 17:00	
11	06:05 19:44-20:08/24 20:53 06:40-07:11/31	06:32 07:26-07:39/13 20:26	07:01 18:56-19:16/20 19:41	07:29 18:08-18:30/22 18:52	07:03 15:20-16:15/55 17:13	07:34 15:32-16:21/49 17:00	
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14	06:08 19:44-20:09/25 20:52 06:41-07:12/31	06:35 07:18-07:46/28 20:23	07:03 18:56-19:14/18 19:36	07:32 17:53-18:25/32 18:48	07:06 15:20-16:16/56 17:10	07:36 15:34-16:21/47 17:01	
15	06:08 19:44-20:10/26 20:51 06:41-07:12/31	06:35 07:15-07:47/32 20:21	07:04 18:56-19:12/16 19:34	07:33 17:51-18:24/33 18:46	07:07 15:19-16:17/58 17:10	07:37 15:35-16:22/47 17:01	
16	06:09 19:44-20:10/26 20:51 06:41-07:12/31	06:36 07:14-07:48/34 20:20	07:05 18:56-19:11/15 19:33	07:34 17:50-18:22/32 18:45	07:08 15:20-16:18/58 17:09	07:38 15:35-16:22/47 17:01	
17	06:10 19:44-20:11/27 20:50 06:42-07:12/30	06:37 07:12-07:49/37 20:19	07:06 18:58-19:09/11 19:31	07:35 17:49-18:21/32 18:43	07:10 15:20-16:18/58 17:08	07:38 15:36-16:22/46 17:01	
18	06:11 19:43-20:10/27 20:50 06:42-07:11/29	06:38 07:11-07:50/39 20:17	07:07 19:00-19:08/8 19:29	07:36 17:48-18:15/27 18:42	07:11 15:20-16:18/58 17:07	07:39 15:37-16:23/46 17:02	
19	06:11 19:43-20:11/28 20:49 06:42-07:11/29	06:39 07:10-07:51/41 20:16	07:08 19:28	07:37 17:47-18:16/29 18:41	07:12 15:20-16:18/58 17:07	07:40 15:37-16:23/46 17:02	
20	06:12 19:43-20:11/28 20:48 06:43-07:11/28	06:40 07:09-07:52/43 20:15	07:09 19:26	07:38 17:47-18:15/28 18:39	07:13 15:20-16:18/58 17:06	07:40 15:38-16:24/46 17:02	
21	06:13 19:44-20:12/28 20:47 06:44-07:11/27	06:41 07:08-07:52/44 20:13	07:10 19:24	07:39 17:48-18:15/27 18:38	07:14 15:20-16:18/58 17:05	07:41 15:38-16:24/46 17:03	
22	06:14 19:43-20:11/28 20:47 06:44-07:11/27	06:42 07:07-07:53/46 20:12	07:11 18:40-18:47/7 19:23	07:40 17:47-18:14/27 18:36	07:15 15:21-16:19/58 17:05	07:41 15:39-16:25/46 17:03	
23	06:15 19:43-20:11/28 20:46 06:44-07:09/25	06:43 07:07-07:53/46 20:10	07:12 18:37-18:50/13 19:21	07:42 17:47-18:12/25 18:35	07:16 15:22-16:19/57 17:04	07:42 15:39-16:25/46 17:04	
24	06:15 19:43-20:11/28 20:45 06:45-07:09/24	06:44 07:06-07:54/48 20:09	07:13 18:35-18:51/16 19:20	07:43 17:48-18:11/23 18:34	07:17 15:22-16:19/57 17:04	07:42 15:40-16:26/46 17:04	
25	06:16 19:44-20:11/27 20:44 06:46-07:08/22	06:45 07:05-07:53/48 20:07	07:14 18:34-18:51/17 19:18	06:44 16:48-17:09/21 17:32	07:18 15:22-16:19/57 17:03	07:43 15:40-16:26/46 17:05	
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28	06:19 19:44-20:10/26 20:42 06:51-07:04/13	06:48 07:08-07:53/45 20:03	07:16 18:32-18:51/19 19:13	06:47 15:37-16:00/23 17:28	07:22 15:23-16:19/56 17:02	07:44 15:41-16:28/47 17:07	
29	06:20 19:45-20:09/24 20:41 06:53-07:01/8	06:49 07:09-07:53/44 20:01	07:17 18:32-18:49/17 19:11	06:48 15:34-16:03/29 17:27	07:23 15:24-16:19/55 17:01	07:44 15:41-16:28/47 17:08	
30	06:21 19:45-20:09/24 20:40	06:49 07:10-07:53/43 20:00	07:18 18:32-18:48/16 19:10	06:49 15:32-16:04/32 17:26	07:24 15:25-16:20/55 17:01	07:44 15:41-16:29/48 17:08	
31	06:22 19:46-20:08/22 20:39	06:50 07:11-07:53/42 19:58	 	06:50 15:30-16:06/36 17:25	 	07:45 15:41-16:29/48 17:09	
	Potential sun hours Sum of minutes with flicker	455 1741	425 873	374 714	347 775	301 1955	292 1496

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE06 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	January	February	March	April	May	June
1	07:45 12:39-13:52/73 17:10 15:44-16:25/41	07:33 07:57-08:38/41 17:43	06:59 17:15-17:47/32 18:15	07:10 18:57-19:26/29 19:47	06:26 19:27-19:43/16 20:17	05:59 19:51-20:08/17 20:45 06:20-06:31/11
2	07:45 12:40-13:52/72 17:11 15:45-16:25/40	07:32 07:57-08:39/42 17:44	06:57 17:17-17:47/30 18:16	07:08 18:55-19:27/32 19:48	06:25 19:29-19:41/12 20:18	05:59 19:51-20:07/16 20:46 06:19-06:31/12
3	07:45 12:41-13:52/71 17:12 15:45-16:26/41	07:31 07:57-08:39/42 17:45	06:56 17:18-17:46/28 18:17	07:07 18:55-19:28/33 19:49	06:24 19:32-19:38/6 20:19	05:58 19:52-20:07/15 20:46 06:19-06:31/12
4	07:45 12:43-13:51/68 17:13 15:46-16:26/40	07:30 07:57-08:39/42 17:47	06:54 17:23-17:45/22 18:19	07:05 18:53-19:29/36 19:50	06:22 20:20 20:20	05:58 19:54-20:06/12 20:47 06:19-06:32/13
5	07:45 12:44-13:51/67 17:14 15:47-16:26/39	07:29 07:57-08:39/42 17:48	06:53 17:23-17:43/20 18:20	07:04 18:53-19:30/37 19:51	06:21 20:21 20:21	05:57 19:54-20:05/11 20:48 06:19-06:32/13
6	07:45 12:45-13:51/66 17:14 15:47-16:26/39	07:28 07:57-08:39/42 17:49	06:51 17:26-17:41/15 18:21	07:02 18:52-19:31/39 19:52	06:20 20:22 20:22	05:57 19:56-20:04/8 20:48 06:18-06:31/13
7	07:45 12:46-13:50/64 17:15 15:47-16:26/39	07:27 07:58-08:39/41 17:50	06:50 17:28-17:38/10 18:22	07:00 18:52-19:32/40 19:53	06:19 19:56-20:00/4 20:23	05:57 19:58-20:03/5 20:49 06:18-06:32/14
8	07:45 12:48-13:49/61 17:16 15:48-16:26/38	07:26 07:58-08:39/41 17:51	06:48 18:23 18:23	06:59 18:51-19:33/42 19:54	06:18 19:52-20:01/9 20:24	05:57 06:18-06:32/14 20:50
9	07:45 12:50-13:49/59 17:17 15:49-16:26/37	07:25 07:59-08:38/39 17:53	06:47 18:24 18:24	06:57 18:50-19:33/43 19:55	06:17 19:51-20:02/11 20:25	05:56 06:18-06:32/14 20:50
10	07:45 12:52-13:48/56 17:18 15:50-16:26/36	07:24 07:59-08:38/39 17:54	06:45 18:25 18:25	06:56 18:51-19:35/44 19:56	06:16 19:49-20:03/14 20:26	05:56 06:18-06:33/15 20:51
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12	07:44 12:56-13:46/50 17:20 15:51-16:26/35	07:21 08:00-08:36/36 17:56	06:42 18:27 18:27	06:53 18:51-19:37/46 19:58	06:14 19:47-20:04/17 20:28	05:56 06:18-06:33/15 20:52
13	07:44 12:59-13:45/46 17:21 15:53-16:26/33	07:20 08:01-08:35/34 17:57	06:40 18:28 18:28	06:51 18:50-19:37/47 19:59	06:13 19:46-20:05/19 20:29	05:56 06:17-06:32/15 20:52
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15	07:43 08:07-08:19/12 15:55-16:25/30 17:23 13:05-13:40/35	07:18 08:04-08:33/29 18:00	06:37 18:30 18:30	06:48 18:51-19:39/48 20:01	06:11 19:45-20:07/22 20:31	05:56 06:18-06:33/15 20:53
16	07:43 08:06-08:22/16 15:56-16:25/29 17:25 13:09-13:38/29	07:16 08:05-08:31/26 18:01	06:36 18:05-18:11/6 18:31	06:47 18:52-19:41/49 20:02	06:10 19:46-20:09/23 20:32	05:56 06:18-06:34/16 20:53
17	07:43 08:04-08:24/20 15:57-16:24/27 17:26 13:15-13:33/18	07:15 08:07-08:29/22 18:02	06:34 18:01-18:11/10 18:32	06:45 18:53-19:42/49 20:03	06:09 19:45-20:09/24 20:33	05:56 06:18-06:34/16 20:54
18	07:42 08:03-08:26/23 17:27 15:59-16:24/25	07:14 08:10-08:27/17 18:03	06:32 17:59-18:13/14 18:33	06:44 18:54-19:42/48 20:04	06:08 19:45-20:10/25 20:33	05:56 06:18-06:34/16 20:54
19	07:42 08:02-08:27/25 17:28 16:00-16:22/22	07:13 08:14-08:21/7 18:04	06:31 17:57-18:14/17 18:34	06:42 18:55-19:44/49 20:05	06:07 19:45-20:11/26 20:34	05:56 06:18-06:34/16 20:54
20	07:41 08:02-08:29/27 17:29 16:03-16:22/19	07:11 17:12-17:44/32 18:05	06:29 17:55-18:14/19 18:35	06:41 18:56-19:44/48 20:06	06:06 19:45-20:10/25 20:35	05:56 06:18-06:34/16 20:55
21	07:41 08:01-08:30/29 17:30 16:05-16:20/15	07:10 17:12-17:45/33 18:06	06:28 17:55-18:16/21 18:36	06:40 18:58-19:45/47 20:07	06:06 19:46-20:11/25 20:36	05:56 06:18-06:34/16 20:55
22	07:40 08:00-08:31/31 17:31 16:08-16:16/8	07:09 17:11-17:46/35 18:08	06:26 17:53-18:16/23 18:37	06:38 19:01-19:23/22 20:08	06:05 19:46-20:11/25 20:37	05:57 06:19-06:35/16 20:55
23	07:40 08:00-08:33/33 17:32	07:07 17:12-17:47/35 18:09	06:24 17:52-18:17/25 18:38	06:37 19:06-19:09/3 20:09	06:04 19:45-20:10/25 20:38	05:57 06:19-06:35/16 20:55
24	07:39 07:59-08:33/34 17:34	07:06 17:11-17:48/37 18:10	06:23 17:53-18:19/26 18:39	06:35 19:23-19:48/25 20:10	06:03 19:46-20:11/25 20:39	05:57 06:19-06:35/16 20:55
25	07:38 07:58-08:34/36 17:35	07:04 17:12-17:49/37 18:11	06:21 17:52-18:19/27 18:40	06:34 19:22-19:48/26 20:11	06:03 19:46-20:10/24 20:40	05:57 06:19-06:35/16 20:56
26	07:38 07:59-08:36/37 17:36	07:03 17:13-17:49/36 18:12	06:20 17:52-18:21/29 18:41	06:33 19:23-19:48/25 20:12	06:02 19:47-20:10/23 20:40	05:58 06:20-06:36/16 20:56
27	07:37 07:58-08:36/38 17:37	07:02 17:13-17:48/35 18:13	06:18 17:52-18:21/29 18:42	06:31 19:23-19:47/24 20:13	06:02 19:47-20:10/23 20:41	05:58 06:20-06:35/15 20:56
28	07:36 07:58-08:37/39 17:38	07:00 17:14-17:48/34 18:14	06:16 17:52-18:22/30 18:43	06:30 19:24-19:47/23 20:14	06:01 19:48-20:09/21 20:42	05:58 06:20-06:35/15 20:56
29	07:35 07:57-08:37/40 17:39	07:15 18:53-19:24/31 19:44	07:15 18:53-19:24/31 19:44	06:29 19:24-19:45/21 20:15	06:00 19:49-20:09/20 20:43	05:59 06:21-06:36/15 20:56
30	07:34 07:57-08:38/41 17:41	07:13 18:54-19:24/30 19:45	07:13 18:54-19:24/30 19:45	06:27 19:25-19:44/19 20:16	06:00 19:50-20:09/19 20:43	05:59 06:21-06:36/15 20:56
31	07:34 07:57-08:38/41 17:42	07:12 18:56-19:26/30 19:46	07:12 18:56-19:26/30 19:46	06:27 19:25-19:44/19 20:16	05:59 19:50-20:08/18 20:44	05:59 19:50-20:08/18 20:56
Potential sun hours	301	299	370	397	445	448
Sum of minutes with flicker	2155	1144	524	1132	605	526

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE06 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

	July	August	September	October	November	December
1	06:00 06:22-06:37/15 20:56	06:22 19:58-20:15/17 20:38	06:51 18:50-19:35/45 19:57	07:19 18:08-19:01/38 19:08	06:51 07:28-08:07/39 17:24	07:25 12:36-13:29/53 17:01 15:33-16:09/36
2	06:00 06:22-06:37/15 20:56	06:23 19:59-20:14/15 20:37	06:52 18:49-19:33/44 19:55	07:20 18:08-19:01/38 19:07	06:53 07:28-08:08/40 17:22	07:26 12:35-13:31/56 17:01 15:33-16:09/36
3	06:01 06:23-06:37/14 20:55	06:24 20:00-20:13/13 20:36	06:53 18:48-19:31/43 19:54	07:21 18:08-19:01/38 19:05	06:54 07:28-08:09/41 17:21	07:27 12:34-13:33/59 17:00 15:33-16:10/37
4	06:01 06:23-06:37/14 20:55	06:25 20:02-20:12/10 20:35	06:54 18:48-19:30/42 19:52	07:22 18:08-19:01/38 19:03	06:55 07:27-08:09/42 17:20	07:28 12:33-13:34/61 17:00 15:33-16:11/38
5	06:02 20:05-20:08/3 20:55 06:24-06:38/14	06:26 20:03-20:10/7 20:34	06:55 18:48-19:29/41 19:50	07:23 18:08-19:01/38 19:02	06:56 07:27-08:09/42 17:19	07:29 12:32-13:36/64 17:00 15:33-16:12/39
6	06:02 20:03-20:10/7 20:55 06:24-06:38/14	06:27 20:03-20:10/7 20:32	06:56 18:48-19:27/39 19:49	07:24 18:08-18:11/3 19:00	06:57 07:27-08:09/42 17:18	07:30 12:31-13:36/65 17:00 15:32-16:11/39
7	06:03 20:02-20:11/9 20:55 06:25-06:38/13	06:28 20:03-20:10/7 20:31	06:57 18:48-19:26/38 19:47	07:25 18:03-18:16/13 18:59	06:58 07:28-08:10/42 17:17	07:30 12:30-13:37/67 17:00 15:33-16:12/39
8	06:04 20:00-20:12/12 20:54 06:26-06:39/13	06:29 20:03-20:10/7 20:30	06:58 18:48-19:24/36 19:46	07:26 18:00-18:18/18 18:57	06:59 07:28-08:10/42 17:16	07:31 12:30-13:38/68 17:00 15:33-16:13/40
9	06:04 20:00-20:13/13 20:54 06:26-06:38/12	06:30 20:03-20:10/7 20:29	06:59 18:49-19:23/34 19:44	07:27 17:58-18:19/21 18:55	07:00 07:27-08:09/42 17:15	07:32 12:29-13:40/71 17:00 15:33-16:14/41
10	06:05 20:00-20:15/15 20:54 06:27-06:39/12	06:31 19:39-19:48/9 20:28	07:00 18:48-19:20/32 19:42	07:28 17:55-18:20/25 18:54	07:02 07:28-08:09/41 17:14	07:33 12:29-13:42/72 17:00 15:34-16:14/40
11	06:05 19:59-20:15/16 20:53 06:27-06:38/11	06:32 19:37-19:50/13 20:26	07:01 18:49-19:19/30 19:41	07:29 17:52-18:21/29 18:52	07:03 07:29-08:10/41 17:13	07:34 12:29-13:42/73 17:00 15:34-16:15/41
12	06:06 19:58-20:16/18 20:53 06:28-06:39/11	06:33 19:35-19:52/17 20:25	07:01 18:47-19:17/30 19:39	07:30 17:49-18:21/32 18:51	07:04 07:29-08:10/41 17:12	07:35 12:29-13:43/74 17:00 15:35-16:16/41
13	06:07 19:58-20:17/19 20:52 06:29-06:39/10	06:34 19:34-19:53/19 20:24	07:02 18:45-19:16/31 19:38	07:31 17:48-18:21/33 18:49	07:05 07:29-08:09/40 17:11	07:35 12:29-13:43/74 17:00 15:34-16:16/42
14	06:08 19:57-20:17/20 20:52 06:29-06:38/9	06:34 19:32-19:53/21 20:23	07:03 18:44-19:14/30 19:36	07:32 17:46-18:21/35 18:48	07:06 07:30-08:09/39 17:10	07:36 12:29-13:44/75 17:00 15:35-16:16/41
15	06:08 19:57-20:18/21 20:51 06:30-06:39/9	06:35 19:31-19:54/23 20:21	07:04 18:43-19:12/29 19:34	07:33 17:45-18:21/36 18:46	07:07 07:30-08:08/38 17:09	07:37 12:29-13:45/76 17:01 15:36-16:17/41
16	06:09 19:57-20:19/22 20:51 06:31-06:39/8	06:36 19:30-19:54/24 20:20	07:05 18:42-19:11/29 19:33	07:34 17:44-18:21/37 18:45	07:08 07:31-08:09/38 17:09	07:38 12:29-13:45/76 17:01 15:35-16:17/42
17	06:10 19:57-20:20/23 20:50 06:32-06:39/7	06:37 19:30-19:54/24 20:19	07:06 18:41-19:09/28 19:31	07:35 17:43-18:20/37 18:43	07:10 07:32-08:08/36 17:08	07:38 12:29-13:46/77 17:01 15:36-16:18/42
18	06:11 19:56-20:19/23 20:50 06:32-06:38/6	06:38 19:29-19:55/26 20:17	07:07 18:40-19:08/28 19:29	07:36 17:43-18:19/36 18:42	07:11 07:33-08:07/34 17:07	07:39 12:30-13:47/77 17:02 15:37-16:19/42
19	06:11 19:56-20:20/24 20:49 06:33-06:38/5	06:39 19:29-19:54/25 20:16	07:08 18:40-19:06/26 19:28	07:37 17:42-18:18/36 18:41	07:12 07:34-08:07/33 17:06	07:40 12:30-13:47/77 17:02 15:37-16:19/42
20	06:12 19:56-20:20/24 20:48 06:34-06:38/4	06:40 19:10-19:17/7 19:26	07:09 18:39-19:04/25 19:26	07:38 17:42-18:16/34 18:39	07:13 07:35-08:06/31 17:06 15:43-15:51/8	07:40 12:31-13:48/77 17:02 15:38-16:20/42
21	06:13 19:56-20:21/25 20:47 06:35-06:38/3	06:41 19:05-19:28/23 19:24	07:10 18:39-19:02/23 19:24	07:39 17:43-18:15/32 18:38	07:14 07:37-08:06/29 17:05 15:40-15:55/15	07:41 12:30-13:48/78 17:03 15:38-16:20/42
22	06:14 19:55-20:20/25 20:47 06:36-06:37/1	06:42 19:03-19:50/47 20:12	07:11 18:39-19:01/22 19:23	07:40 17:43-18:14/31 18:36	07:15 07:38-08:05/27 17:05 15:39-15:58/19	07:41 12:31-13:49/78 17:03 15:39-16:21/42
23	06:15 19:55-20:21/26 20:46	06:43 19:00-19:49/49 20:10	07:12 18:39-18:59/20 19:21	07:42 08:43-08:54/11 18:35 17:43-18:12/29	07:16 07:39-08:04/25 17:04 15:37-15:59/22	07:42 12:31-13:49/78 17:04 15:39-16:21/42
24	06:15 19:55-20:21/26 20:45	06:44 18:58-19:46/48 20:09	07:13 18:40-18:57/17 19:20	07:43 08:39-08:57/18 18:34 17:43-18:11/28	07:17 07:40-08:03/23 17:04 15:36-16:01/25	07:42 12:33-13:50/77 17:04 15:40-16:22/42
25	06:16 19:56-20:21/25 20:44	06:45 18:56-19:45/49 20:07	07:14 18:41-18:56/15 19:18	06:44 07:36-08:00/24 17:32 16:43-17:09/26	07:18 07:42-08:02/20 15:35-16:02/27 17:03 12:53-13:11/18	07:43 12:33-13:50/77 17:05 15:40-16:22/42
26	06:17 19:56-20:20/24 20:44	06:46 18:55-19:44/49 20:06	07:14 18:43-18:54/11 19:16	06:45 07:34-08:01/27 17:31 16:44-17:08/24	07:19 07:44-08:00/16 15:34-16:03/29 17:03 12:48-13:16/28	07:43 12:33-13:50/77 17:06 15:40-16:22/42
27	06:18 19:56-20:20/24 20:43	06:47 18:54-19:42/48 20:04	07:15 18:45-18:53/8 19:15	06:46 07:34-08:03/29 17:30 16:45-17:06/21	07:21 07:46-07:58/12 15:34-16:04/30 17:02 12:44-13:19/35	07:43 12:35-13:51/76 17:06 15:41-16:23/42
28	06:19 19:56-20:18/22 20:42	06:48 18:53-19:41/48 20:03	07:16 18:45-18:54/11 19:13	06:47 07:32-08:05/33 17:28 16:47-17:06/19	07:22 07:50-07:54/4 15:33-16:05/32 17:02 12:41-13:22/41	07:44 12:35-13:51/76 17:07 15:41-16:23/42
29	06:20 19:56-20:17/21 20:41	06:49 18:52-19:38/46 20:01	07:17 18:45-18:54/11 19:11	06:48 07:31-08:05/34 17:27 16:49-17:04/15	07:23 12:39-13:24/45 17:01 15:33-16:06/33	07:44 12:36-13:51/75 17:08 15:42-16:23/41
30	06:21 19:57-20:16/19 20:40	06:49 18:51-19:38/47 20:00	07:18 18:45-18:54/11 19:10	06:49 07:30-08:06/36 17:26 16:52-17:02/10	07:24 12:38-13:28/50 17:01 15:33-16:08/35	07:44 12:36-13:51/75 17:08 15:42-16:23/41
31	06:22 19:57-20:16/19 20:39	06:50 18:51-19:37/46 19:58		06:50 07:29-08:07/38 17:25		07:45 12:37-13:51/74 17:09 15:42-16:24/42
Potential sun hours	455	425	374	347	301	292
Sum of minutes with flicker	745	816	796	910	1432	3494

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE07 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

Table with columns for months (January to June) and rows for each day. Columns contain time ranges (Sun rise to Sun set) and Potential sun hours. Row 31 (December) shows 301 potential sun hours, while Row 32 (January) shows 397.

Table layout: For each day in each month the following matrix apply

Matrix with 2 rows: Day in month, Sun rise (hh:mm) / Sun set (hh:mm); and First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker.



Project:

Eolico_Selegas_2021_12_21

Licensed user:

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Giuseppe Frongia / direttore@iatprogetti.it
Calculated:
23/12/2021 14:51/3.4.415

SHADOW - Calendar per WTG

Calculation: Shadow_progetto_2021_12_23WTG: SE07 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)
Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:
The sun is shining all the day, from sunrise to sunset
The rotor plane is always perpendicular to the line from the WTG to the sun
The WTG is always operating

Table with columns for months (July to December) and rows for days (1 to 31). Each cell contains two time ranges (e.g., 06:00 19:35-20:23/48) and a numerical value representing minutes with flicker. Summary rows at the bottom show 'Potential sun hours' and 'Sum of minutes with flicker' for each month.

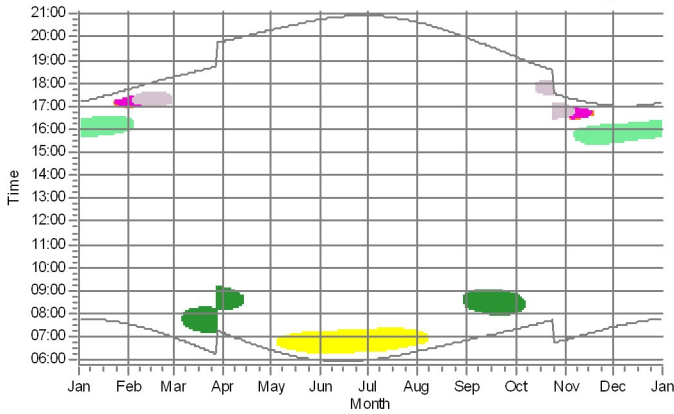
Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

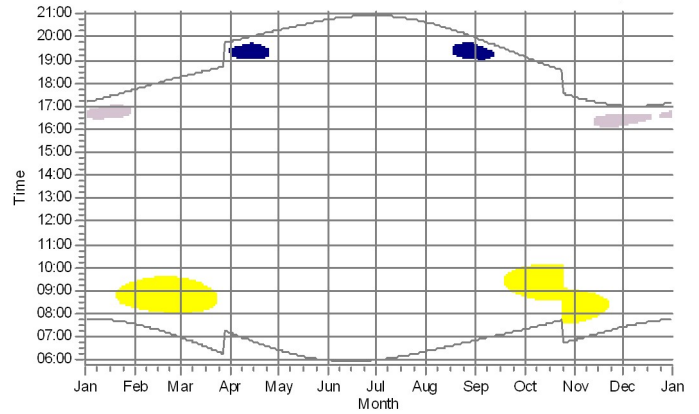
SHADOW - Calendar per WTG, graphical

Calculation: Shadow_progetto_2021_12_23

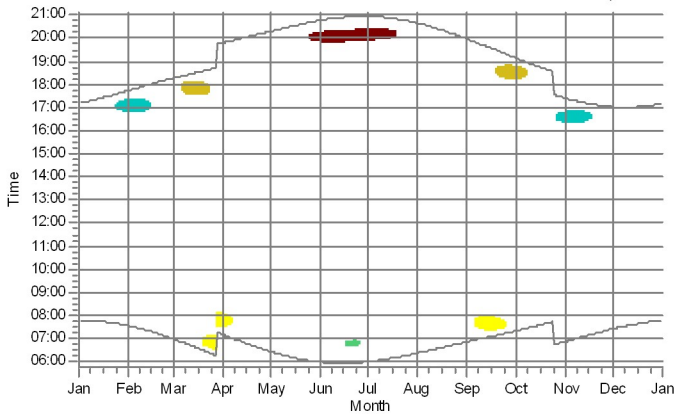
SE01: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 20



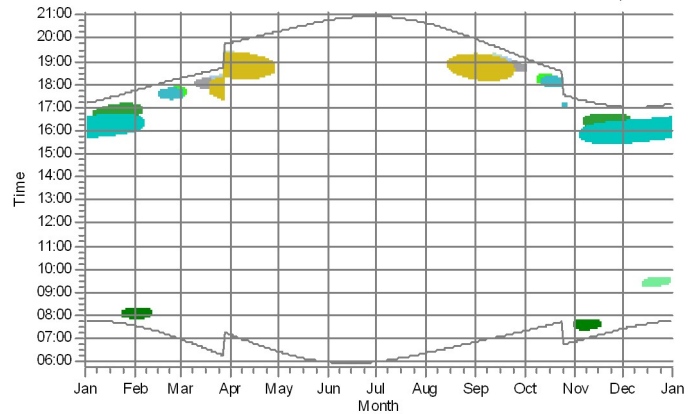
SE02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 20



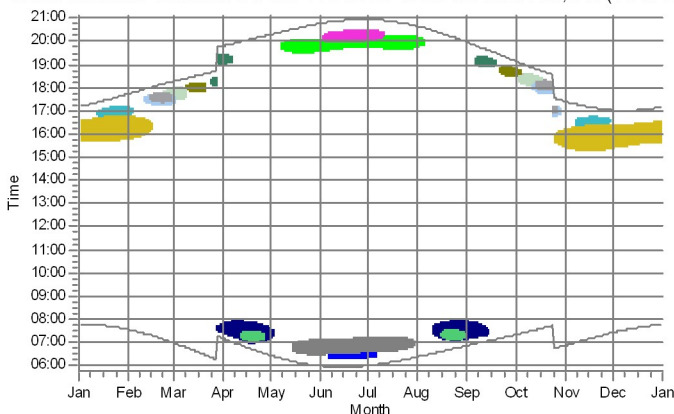
SE03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 20



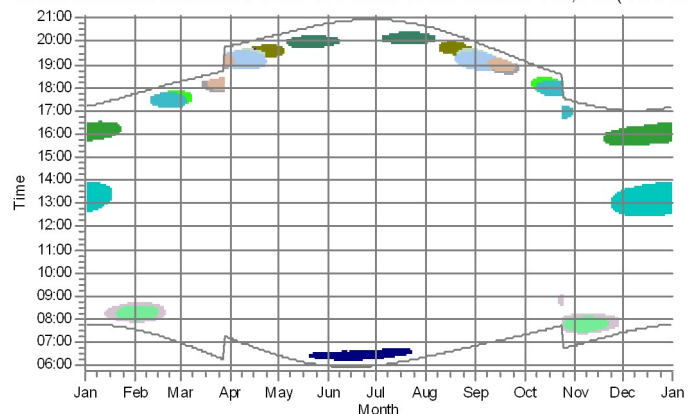
SE04: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 20



SE05: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 20



SE06: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 115,0 m (TOT: 20



Shadow receptors

- F01: D10
- F02: SEMINATIVO - PASCOLO ARB
- F03: C2
- F04: SEMINATIVO - PASCOLO
- F07: C1
- F08: C2
- F09: A3 - Abitazione

- F10: ENTE URBANO
- F11: C2
- F12: C2
- F12: FABB RURALE
- F12: C2
- F13: C6
- F14: ENTE URBANO

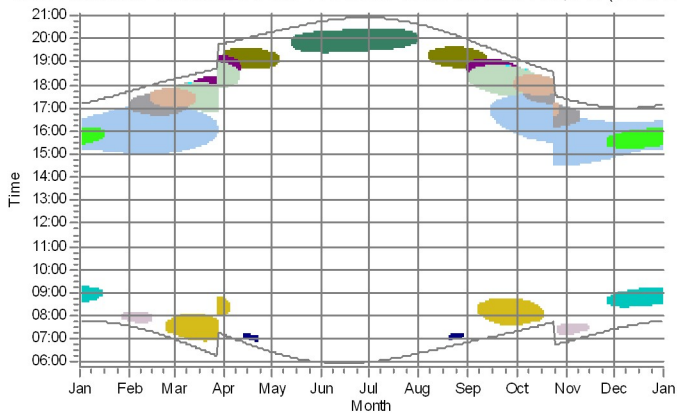
- F15: ENTE URBANO
- F16: A4 - Abitazione
- F17: F3-C1
- F18: A4 - Abitazione
- F19: D10
- F21: C2
- F22: C2

- F23: D10
- F24: C2
- F25: SEMINATIVO - PASCOLO ARB
- F26: VIGNETO
- F27: SEMINATIVO
- F28: SEMINATIVO IRR- SEMINATIVO
- F29: ULIVETO - VIGNETO

SHADOW - Calendar per WTG, graphical

Calculation: Shadow_progetto_2021_12_23

SE07: Siemens Gamesa SG 6.0-170 6000 170.0 !D! hub: 115,0 m (TOT: 20



Shadow receptors

 F07: C1	 F12: FABB RURALE	 F15: ENTE URBANO	 F27: SEMINATIVO
 F10: ENTE URBANO	 F12: C2	 F16: A4 - Abitazione	 F28: SEMINATIVO IRR- SEMINATIVO
 F11: C2	 F13: C6	 F19: D10	
 F12: C2	 F14: ENTE URBANO	 F23: D10	